JOURNAL

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R. A. I. C.
JUNE 1950

THE Trade Fair in Toronto is an event to which we look forward annually with lively anticipation. It is yet in its infancy, and is in many ways a bawling brat compared with those ancient fairs of Europe, which have a tradition of colour as well as dignity. The Trade Fair is the kind of exhibition that requires for its presentation all the skill of the architect and the painter in the building itself; and of the architect and other competent designers in the arrangement and design of booths. By contrast, the Toronto Trade Fair is held in the Coliseum, a stark and ugly, low-ceilinged building whose customary function is the showing of live stock. The live stock, of course, were not there, but the stale smell of urine seems impregnated in the floors, and permeates the air. Such an atmosphere is perhaps an accepted one for the showing of bulls, but is strangely incongruous in the contemplation of fabrics and beautiful glass. Toronto must keep its Trade Fair. It is evidence of a cultural maturity not to be found in the C. N. E. The Fair deserves a special building which, of course, would serve many purposes — a building as bright and as well designed as its best exhibits. We should like to see a building in which it would be sacrilege to introduce pink candy floss or the brown bag for the accumulation of loot, and we should like to see a printed programme of exhibits which we could buy for $1.00, and keep as a treasured possession. We already have one of an old Leipzig Fair for which a collector would ask $10.00 at least.

DOUBTLESS, all who saw the Trade Fair were impressed by the size of the French and the Czechoslovakian exhibits, and the quality of material shown. Is there any reason why the Canadian Government should not take space for an exhibit of even one-third the size, that would indicate to foreign buyers the skills to be found in this country? We are quite confident that the National Industrial Design Committee and the Canadian Handicraft Guild could, between them, put on a show that would be second to that of no country or firm exhibiting. It was during the war that the Ontario Branch of the Canadian Handicraft Guild arranged an exhibition in Eaton's Auditorium that attracted thousands of Canadians and not a few New York buyers. We remember very well the disappointment of the latter when they found that Canadian fabrics were not available in quantity. That situation probably no longer exists — at any rate in weaving — and the five-hundred-yard order would not seem as fantastic and remote as it did in 1944. Such an exhibition would do much to improve the standards of design in all products. Especially in the handicraft field, would design in urban centres become more sophisticated and original, and in the rural areas, more rural. The visitor with even limited judgment in these matters is appalled at the wasted effort that goes into the making of such objects as hooked rugs. In folk art or craft in Europe, design is never divorced from actual manufacture, but here in Canada, the ability to design has been destroyed by the ready-made pattern, which invariably is taken from an oil painting. For too long we have been sentimental over bad handicrafts. A central exhibition with a competent and respected jury of selection would expose the weaknesses as well as the strength of Canadian handicrafts. If the Industrial Designers would join with the handicraftsmen, the Trade Fair would be enlivened by an exhibit of outstanding attraction.

Editor

HOUSING NEED AND HOUSING DEMAND

Economic Considerations Arising Out of Public Recognition of the Principle of Housing Need

By O. J. FIRESTONE

A Paper read at the Seminar on Canadian Housing Needs at the Diamond Jubilee Convention of the O.A.A.

I APPRECIATE the invitation of your Executive to talk to you about the economic aspects of housing need. I shall deal with this subject in discussing housing need and housing demand and in referring briefly to the economic considerations which arise out of public recognition of the principle of housing need. Speaking to you as a civil servant, my remarks should be regarded solely as the observations of a technician. To turn now to the topic.

Two momentous housing events occurred in December, 1949, making the turn into the 'fifties a milestone in Canadian housing history.

Post-War Housing Achievements

First, the three hundred and twenty thousandth house was completed as the fourth post-war year drew to a close. Never before in Canadian history had so many houses been built in such a short period and under such trying circumstances. The millionth Canadian moved into a place of his own. Every tenth family in Canada was living in a new post-war home. This was an industrial achievement of the first order, of which the building industry and the professions could well be proud, and which the Government had facilitated by a variety of measures. (1) But the main beneficiaries were those million Canadians for whom the dreams of a post-war house had become a reality.

Recognition of the Principle of Housing Need

Secondly, Section 35 of the National Housing Act, 1944, became law on December 10, 1949. On that date, after a thirty-year controversy, an important step was taken by the Government by accepting a measure of continuing responsibility for housing need. Section 35 opened the way for joint Federal, provincial and municipal housing projects to provide both economic and subeconomic (or subsidized) housing, depending on what the people and the governments in each region and locality considered the most effective way of tackling their particular housing problem. Statutory recognition of the principle of housing need was the opening shot in the second stage: to translate principles into houses, to transform slums into model communities, and to make the slogan of a high Canadian housing standard a living reality.

All great issues involving public controversy have one distinctive feature in common. They are clouded in confusion. Claims and counter-claims frequently obscure not only the problem itself but also what can be done about it and how it can be achieved most effectively. Among the confused issues housing ranks pretty high.

The Fairy Tale of a Chicken for Every Sunday Dinner

A fairy tale might illustrate how much easier it is to get confused than to see things clearly.

Once upon a time a king who had the wellbeing of his subjects very much at heart announced that every family in his kingdom was to have a chicken for Sunday dinner. There was great rejoicing in the land, particularly among the chicken raisers and distributors, who expected to do a landslide business.

The king then called together his elders and asked them how to proceed. The elders stroked their beards, and those who were beardless and bald scratched behind their ears. Finally, they recommended to the king that a census be taken to find out the number of families who needed chickens. The number was to be found, they said, by subtracting from the total number of families those who were buying a chicken for Sunday dinner anyway. The king decreed to do as the elders said — at that time, unlike the present, the experts were always presumed to be right until proven wrong. The number of families not buying chickens was then counted, and the same number of chickens were bought and stored in the king's warehouses. All families concerned were asked to pick up their chickens against a payment of a nominal sum, set so low that even the poorest family could afford it.

But when the first Sunday passed there were thousands of chickens left in the king's warehouses. When the king heard this he got angry. He called his elders and told them what he thought of their advice, and he decreed that the punishment of the elders would be to eat the chickens that were left over until they were coming out of their ears.

Why were not all the chickens ordered by the king used? First, there were some families who did not like eating chickens. Secondly, there were those families who would not pay even the nominal sum required to get a chicken but would rather spend their money on beer. And then there were those who would not pick up their chickens because they were not going to let even a king tell them what they were going to have for dinner. What went wrong was that the elders did not consider the fickleness of human nature.

The moral of the fairy tale of course is: One cannot establish the need for chickens just by counting the number of human noses.

(1) For a summary of the effect of governmental housing measures, see *Annual Report of Central Mortgage and Housing Corporation, 1949*, and *Housing in Canada, January, 1950*, a quarterly review by Central Mortgage and Housing Corporation.

Difference Between Housing Need and Housing Demand

Now what was true for the chickens in this fairy tale is also relevant for the housing problem in Canada. How else could one explain the fact that estimates by responsible citizen groups and learned bodies of Canadian housing need to be met annually have varied from 60,000 to 145,000 units or a range of about 150 per cent.[1] Obviously, there are differences of opinion of what housing need is, where it begins and where it ends. And, just to make things worse, housing need has frequently been confused with housing demand, which is as different as a piano is from a violin. The only thing the last two have in common is that they are both musical instruments. Housing need and housing demand have only the fact in common that they both relate to housing.

Canada's over three million families can be divided into four groups: (1) Those who have a dwelling of their own and do not want to move; (2) those who have a dwelling but want to obtain another home which is bigger, better or cheaper; (3) those who do not have a separate dwelling of their own and do not want one, e.g., a young couple living with their parents; and (4) those who do not have a separate dwelling of their own but would like to get one. Groups (1) and (3) do not want a new home. They have, therefore, no housing problem. Groups (2) and (4) want a home of their own, and they indicate in some measure the housing requirements of the country.

Taken together, those who want a new home fall again into two categories. First, there are those whose assets and incomes enable them to buy a home or lease a place of their own at prevailing prices or rents. These families represent effective housing *demand*. These people have the money to get what they want, and they will get it when they find suitable accommodation. But there is another category of families who want homes but cannot afford to buy or rent one at prevailing prices. They do not represent housing demand, because for financial reasons they are unable to make their want effective in a free market economy. The requirements of this group may be described as housing *need*.

The Struggle for Recognition of Housing Need

It is not surprising that for many years the principle of accepting some public responsibility for housing need did not find official recognition by governments, or professional recognition by economists. Many social workers, health authorities, sociologists and reformers believed in it, but their arguments were not very convincing. The trouble with housing need was that its determining criteria were so unlike those of housing demand, with which the general public was more familiar. Housing demand was determined by economic criteria, mainly the relationship of incomes to prices, the accumulation of savings, and mobility and growth requirements of the country. All these criteria could be established through the marshalling of facts—sometimes with difficulty, it is true, but still the basis for decisions were economic facts. But when it came to housing need the criteria were health, welfare, moral and ethical standards that were hard to establish, difficult to agree upon, and varied so much over time and for different regions and localities that attempts to delineate housing need gave an unscientific and unconvincing impression. This made it easy to pass over estimates of housing need and requests to do something about them as the unreal dreams or the wishful thinking of a small group of professional complainers.

This critical attitude towards a concept of housing need was shared equally for many years by the majority of the Canadian people and their governments. The negative attitude towards housing need was further fortified by another fact.

The lines between housing demand and housing need were not clearly drawn and varied greatly over time.[1] To give an example: A young couple with sufficient income were looking for a place of their own. Their requirements represented housing demand. But the husband lost his job, and they had to stay on in their rented room. They still wanted a home of their own, but now they could not afford it. Overnight, then, housing demand was replaced by housing need. But then the young couple moved into their parents' home and they liked it so much there that they decided that they did not want a place of their own even if they could afford it. Thus, in this case, even the housing need disappeared. Remember the fairy tale of the chickens! It is not the number of families alone that determines either housing demand or housing need.

Housing Need Becomes More Respectable

Now, what brought about the change in the attitude towards housing need particularly noticeable in the last decade?

First, the fact that Canada experienced the greatest housing shortage in her history during World War II and the immediate post-war period.

Secondly, a clearer understanding that housing need and housing demand were entirely different matters. Housing demand had fluctuated greatly in the between-the-wars period, as incomes also fluctuated substantially

(1) The Canadian Construction Association mentioned a post-war housing need of 300,000 homes which should be met over the first five post-war years, that is, 60,000 units annually. The Association stated that "the greater part of the 300,000 homes will be for low income families, and will involve Government ownership and assistance in some form". (*The Role of the Construction Industry in Post-War Years*, a brief from the Canadian Construction Association to the Special Sub-Committee on Reconstruction and Re-Establishment, of the House of Commons of Canada, Ottawa, November, 1943, p. 10.). The Ontario Association of Architects placed Canada's housing need for the first ten years after the war at between 1,114,000 and 1,450,000 units, or an annual average varying from 114,000 to 145,000. (Canadian Institute of International Affairs, *Homes or Hovels*, "Behind the Headlines" series, Toronto, Vol. 3, No. 5, 1943, p. 36.).

(1) For a comprehensive discussion of definitions and extent of housing demand and housing need, see *Frontiers of Housing Research*, Panels III and IV, published in "Land Economics", Wisconsin, February, 1949, pp. 103-132.

(see Figure I). The question of fortifying housing demand in the future and avoiding some of the substantial fluctuations of house building were important economic factors leading to consideration of housing need, which if met through public housing measures could add to the stability of the construction industry.

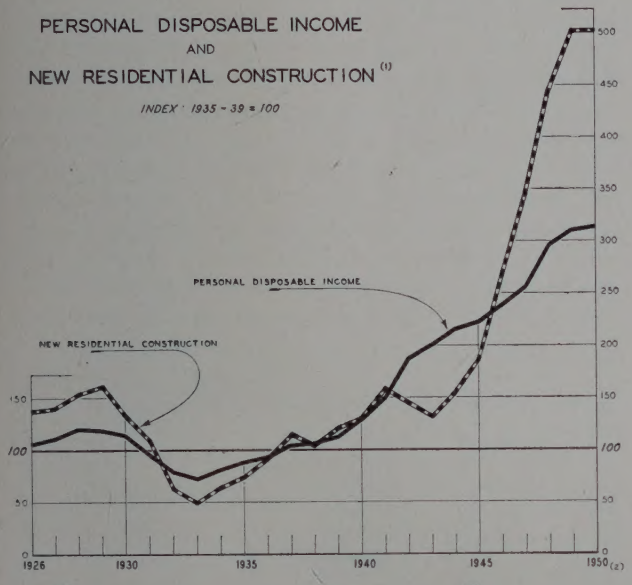

FIG. I

Thirdly, the concept of a minimum standard of living for Canadian families was gradually finding wide acceptance among large sectors of the working population. And as countries which for many years had been known as the outstanding proponents of the free enterprise system, such as the United Kingdom and the United States, recognized the principle of housing need and designed public housing schemes, Canadian thinking could not help but be influenced by such developments abroad.

Nevertheless, there still are many people in Canada who feel that the recognition of the principle of the government accepting some responsibility for housing need, which may lead the country into public housing undertakings, is completely uncalled for in a society where great opportunities exist for everyone to achieve a reasonably high standard of living as the result of his own labour.

National measures of major importance are usually based on compromise between the views of those who are for it and of those who are against it. Housing measures are no exception to this rule. This explains the gradualness and flexibility with which the long term solution of the housing problem is being approached in Canada.

Joint Federal, Provincial and Municipal Housing Projects

To sum up the present situation: There are many people in Canada who feel that there should be a continuing high volume of house building in order to raise gradually the housing standard of all groups of Canadian families. If, in order to achieve this goal it is necessary to provide subsidized low rental housing, then this possibility should not be overlooked. And there are others who think that most of the same goal can be achieved without a public housing program.

The new Section 35 of the National Housing Act, 1944, takes account of the different views that are being held presently in Canada about how to get homes built in sufficient numbers in the future. The legislation makes provision for Federal and provincial (and municipal) authorities to enter into agreements to facilitate house building along three lines: (a) To provide serviced land to facilitate private and public residential housing development; (b) to build houses for sale by private builders for purchase by individual families with financing requirements greatly reduced under other provisions of the National Housing Act, and (c) to build where necessary low rental housing projects which might be leased at less than economic rentals, with the difference being made up by the participating governments in the form of contributions to a rent reduction fund.

Capital costs and operating losses or profits are to be shared 75 per cent by the Federal Government and 25 per cent by provincial governments and any other participating agencies, in particular municipal authorities.

There are many interesting features in these new provisions that could usefully be examined, such as the flexibility of the approach towards Federal, provincial and municipal co-operation and the recognition that the housing problem is different in various parts of the country and requires individual treatment in each locality. But the remainder of this paper will concentrate on one question only: What are some of the economic considerations arising out of the public recognition of the principle of housing need: In particular, what would be involved and how much would it cost if Federal, provincial and municipal authorities would embark on subsidized low rental housing projects in Canada?

Method of Analysing Financial Costs of Low Rental Housing Projects

It is one of the characteristics of modern society that it prefers facts and figures to qualitative answers to a question. In presenting in summary form some relevant quantitative evidence available on the subject, the figures referred to below are assembled primarily for the purpose of illustration. They are used in conjunction with certain assumptions which may or may not come true. Further, the data shown are preliminary and approximate.[1] In reality, if and when decisions are to be made to undertake an *actual* low rental housing development, the concrete circumstances in each locality and affecting each project will have to be ascertained and many other factors, which for space reasons cannot be considered here, will have to be taken into account.

The following analysis deals with conditions in four metropolitan centres in Canada: Montreal, Toronto, Winnipeg and Vancouver.

Four assumptions are made: (1) That the average capital cost of a public housing unit, including land, will not exceed $7,000; (2) that tenant families are willing and able to pay 25 per cent of their incomes for rent, including heating, hot water, janitor service, etc.,[2] and that the monthly rent would not be less than $25 for a four-roomed heated apartment; (3) that families selected to move into low rental housing projects on the basis of need would be representative of the income distribution in the lower income third;[3] and (4) that municipal authorities would share with provincial governments half[4] of the operating and capital costs involved in building low rental housing projects, and that in return municipal authorities would be reimbursed in full for serviced land they might have made available and would receive full municipal taxes equivalent to those paid for like properties by private owners.

Population, Households and Incomes

At the end of 1948 the four metropolitan centres mentioned above comprised a total population of 3.2 million, or about one-quarter of Canada's population. But since tenant families are more concentrated in these four cities than in the rest of Canada, they represent two-fifths of total tenant families. The total number of "spending units"[5] of two or more persons (roughly equivalent to households) was estimated at 874,000. Of these, 338,000 or about two-fifths were living in their own homes and the remainder living in rented quarters.

The average income of all spending units living in the four cities was $3,250 per year. It varied from a low of $3,050 for Winnipeg, to a high of $3,500 for Toronto. Dividing the total number of households into three equal income thirds, spending units in the lower income third earned less than $2,400 annually, in the middle third between $2,400 and $3,400, and in the upper third more than $3,400 (see Table 1).

Housing Need Quantitatively Illustrated

It has been stressed earlier than in order to avoid confusion it is essential to separate two spheres, housing demand from housing need. This is done here for the four cities selected as of a point of time, approximately the end of 1948. As emphasized previously, the situation is constantly changing, and is likely to be different in 1950.[1] Taking $7,000 as the average capital cost per unit for a multiple housing project, economic rentals would be approximately $52 per month (see Table 2). Using the standard set in assumption (2), such a rental would require a monthly income of about $200, or an annual income of $2,400. This means that families in the less than $2,400 income group could only afford to pay economic rentals for new housing accommodation if they paid more than 25 per cent of their income. It so happens that this group comes very close to the lower income third in the four cities examined, as the average upper boundary of the low income third was less than $2,400. The only exception among the four cities is Toronto, where the upper boundary was somewhat higher, less than $2,650. This means that on the basis of the ratio of economic rentals to income as used here there will be a number of families in Toronto in the upper sector of the lower income third who still can afford to pay economic rentals. Nevertheless, there still remain some 37,000 tenant families with incomes of less than $2,400 in Toronto, and a total in the four cities of about 180,000 families who would represent apparent housing need as defined above. They represent the maximum number that would be eligible for accommodation in subsidized low rental housing projects.

As a side aspect of the present analysis, it is interesting to note that the families in the lower income third were paying only about 21 per cent of their incomes for rent in 1948 (see Table 3). However, the situation would be distinctly different in 1950 because of the increase in rentals which has been allowed since this survey was made.[2]

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(1) Data on households, incomes and shelter costs are a special compilation based on the records of the Family Expenditure and Income sample survey undertaken in 1948 by Dominion Bureau of Statistics and made available by courtesy of that agency. Other data are based on operating experience of Central Mortgage and Housing Corporation. The figures are approximate, because in reality ranges are more appropriate than any one particular figure selected in this paper for illustration purposes. Average figures, as is well known, cannot possibly cover all situations that may exist.

(2) That is, the usual 20 per cent for rent and 5 per cent for related services.

(3) If, for example, only families with annual incomes of less than $1,200 were selected, larger rental subsidies would be required than if a representative group of the over half a million tenant families in the lower income third was selected. The upper boundary of the lower income third in the three cities was less than $2,300 and in Toronto less than $2,650.

(4) This more extreme assumption has been made to illustrate that even under such conditions the financial burden to the municipality sponsoring a low rental housing project might be lower than might be assumed at a first glance. In practice, the extent of the contribution by municipalities will vary and will depend on the financial status of and the relationship between the provincial and municipal authorities.

(5) The Dominion Bureau of Statistics defines a spending unit as a group of persons putting all incomes into a common fund and meeting all expenses from that fund.

(1) For example, reduced down payment requirements for home purchasers introduced in the 1949 amendment to the National Housing Act, 1944, might induce families hitherto not in the housing market to endeavour to obtain a home of their own, particularly in the light of increases in the rental ceilings between 18 and 22 per cent, which have been announced in November, 1949. Such a development would fortify housing demand and reduce housing need as defined in this paper.

(2) Income figures are presently not available separately for spending units living in their own homes and in rented premises. However, data on shelter expenditures by tenant families are available. By relating average incomes of both home owners and tenant households to tenant shelter expenditures, the ratio obtained is likely to be a little lower than the ratio that would be obtained had data on incomes of tenant spending units been available. However, it does not appear that a downward bias of the data available is significant enough to affect some of the basic relationships becoming apparent from the statistics available. This qualification should be borne in mind in considering the estimates of rental subsidies shown in Tables 4 to 6.

Now before proceeding any further in appraising housing need, the moral of the fairy tale should be recalled. There will be families in the lower income third who are quite satisfied with their accommodation and do not want to move. There will be others who will not want to pay even the low subsidized rentals, preferring to stay in their present accommodation and spend the extra rent required on other things than shelter expenditures. There will be still others who will strain their budgets and by devoting a higher proportion than 25 per cent of their income to shelter will be able to acquire homes of their own or rent apartments in private housing developments at economic rentals. Further, as income and personal conditions change, families are constantly moving both into and out of the lower income third, so that, while the total number may change only little from year to year, the aggregate will be made up of different groups of people.

The most realistic way to test how many families are eligible to be considered for accommodation in low rental housing projects would be to state the conditions under which families would be accepted and then to ascertain how many would actually apply. Because of the individualistic attitude of Canadians, it is doubtful whether even one-half of the number of families eligible at the end of 1948 would have applied. But whether the proportion would be more or less than one-half is purely academic, because it would take many years to provide low rental housing accommodation for all those families who may be eligible and would want to move into such quarters. And even after the most pressing housing needs have been met in the course of a number of years, by the time this has been done economic conditions and social attitudes might have changed and the boundaries between housing need and housing demand might be entirely different from what they are at present.

The analysis suggests that whatever standards are used and assumptions made, as long as these are realistic there is a minimum core of housing need which cannot be met by traditional methods of house building and housing finance. Even though that core would be put as low as 25 per cent of all the tenant families in the lower income third in the four cities reviewed here, this would mean that over the next five years Montreal would require about 5,000 low rental housing units annually, Toronto about 2,500, Vancouver about 1,000, and Winnipeg approximately 700.

Financing of the Low Rental Housing Program

Economic and Sub-Economic Rentals. Before capital and operating costs can be estimated for Federal, provincial and municipal low rental housing projects, some idea of the range of rental subsidies required at given income levels of tenant families is necessary. It has been suggested earlier that the four-city average of economic rentals might be close to $52 per month. Average sub-economic rentals which families could afford to pay, based on assumptions 2 and 3, appear to be of the order of $38. This suggests the need of an average monthly rental subsidy of $14, varying for the four cities as follows: Toronto $12.50, Montreal $13.50, Vancouver $14, and Winnipeg $17 (see Table 4).

Capital Costs and Rental Subsidies — Intergovernmental Participation. On the basis of $7,000 capital costs per low rental housing unit, the Federal share would be $5,250 and the provincial share $1,750. If municipalities were to be asked by provincial governments to participate in such projects on a 50-50 basis this might involve a capital contribution of $875 on the part of municipalities. If Toronto, for example, were to embark on a 2,500 low rental housing program annually over the next five years, this would involve a capital contribution of some $2 million per year. On the other hand, if any of the cities mentioned above were to decide to proceed on the basis of 1,000 low rental housing units annually, $875,000 would be the required contribution to capital cost.

As far as annual rental subsidies are concerned, the four-city average would be $163, with the Federal Government contributing $122 and the province either alone or in conjunction with the municipality providing the remaining $41 (see Table 5).

Municipal Budget for Low Rental Housing Projects. Since municipal authorities are generally accepted to be in a financially weaker position than either provincial governments or the Federal Government, it is of interest to examine by way of illustration some of the salient features of a municipal budget for a single low rental housing unit.

On the expenditure side, municipalities might be called upon to contribute $875 to the capital cost of such a unit. But should a municipality be in a position to provide serviced land the value of its contribution in kind to the low rental housing project might come close to its required cash contribution, depending, of course, on the value of the land, which is determined by location and prevailing residential land prices. In the case of a municipality providing serviced land, little cash outlay might be required on the part of the municipality as far as its contribution to capital costs is concerned. Of course, if only unserviced land were available or if the site would have to be purchased, a cash contribution might be required.

In addition to a contribution to capital costs the municipality might also be called upon to share in the rental subsidies required to bridge the gap between economic and sub-economic rentals. The annual contribution of municipalities to the rent reduction fund might average $21 for the four cities, varying for the individual cities as follows: Toronto $19, Montreal $20, Vancouver $21, and Winnipeg, $25.50 (see Table 6).

On the receipt side, there are certain aspects which can be put in quantitative terms, while others are better referred to qualitatively.

Economic rentals, as shown in Table 2, include an allowance for the full amortization of capital costs over a 50-year period at 3 per cent. If municipalities contribute $875 or 12½ per cent of total capital costs of a low rental housing project either in cash or in kind (e.g., serviced land), they would be credited with about $34 as their share in the annual re-payment of capital costs. This receipt would offset in part or in full, depending on conditions, the municipal contribution required to the rent reduction fund. In the illustration used in this paper, receipts would cancel out the contribution to the rent reduction fund, but in practice it may turn out that rental subsidies required may be higher[1] than assumed above, mainly because there may be a greater concentration of families coming from the lower sectors of the lower income third. Whatever the municipal contribution to the rent reduction fund may turn out to be, the amortization payment received by the municipality would represent a significant offsetting item.

The main receipt of the municipality, of course, would be the full municipal taxes paid for the property. Here it has been assumed as 12 per cent of total capital costs, or $84 annually. In reality this amount will differ for various cities and even within cities depending on the location of the low rental housing project.

The above figures, while illustrative only, suggest that municipal low rental housing projects under joint Federal, provincial and municipal schemes may present a lesser burden on municipalities than might be assumed on the basis of a priori reasoning without looking at the facts.

Among other gains to be made by the municipality is the fact that once the project is fully amortized after 50 years it might become the property of the municipality without any encumbrance of a capital nature attached to it. Another feature would be that general city operating costs covering such items as health, police and fire protection might be reduced if the building of the low rental housing project were tied in with slum clearance and re-housing schemes.[2]

Conclusion

The last 15 years represent the first stage in the striving for a national housing program which would meet the requirements of all sectors of the population. Most of the measures were taken by the Federal Government, and include financial provisions under the National Housing Act, 1944, and its predecessors, and direct house building to meet special war and post-war conditions. With the passing of Section 35 of the National Housing Act, 1944, by the Canadian Parliament, a new stage has been set.

Two fundamental principles have been recognized: (1) That housing requirements vary greatly in localities and regions across the country, and that people in each municipality and province should be free to choose the most effective way of coping with their particular problem, and (2) that a national housing program requires Federal, provincial and municipal co-operation with the Federal Government paying the larger share of costs.

The basis has now been laid for each locality and region to determine its own housing problem and work out the best means of coping with it. At present Section 35 is nothing but a blank cheque. It is valueless like other blank cheques until it is filled out, signed and backed by the resources of those who put their signatures on it.

What is then the next step to make Section 35 a working reality? While provincial governments will need to pass legislation supplementary to that passed by the Canadian Parliament in the last session and to make possible the establishment of municipal housing authorities, the largest measure of initiative will rest with each municipality. For if housing conditions vary in each locality, then it is the local authority who is the best judge of what its problems are, what could be done about them and how it should be done.

There will be a lot of soul searching among municipalities to determine what their most pressing housing problem is, whether it is one or all three of these: More serviced land, more houses for sale, or new low rental housing projects. Particularly to determine the latter will cause a great deal of headaches. Municipalities will want to find out how many low rental housing units are most urgently needed, of what kind and size they should be, where they should be located, what they should cost, what sub-economic rentals should be charged and what contribution the municipality considers itself in a position to make without weakening its financial structure or significantly increasing the local tax burden. And, finally, it will have to make sure that it has a competent local housing authority that could put into effect whatever housing projects may be finally agreed upon between the municipal, provincial and Federal governments.

Views as to how the housing problem should be solved will vary in each municipality. A certain amount of confusion about the issues involved will be unavoidable until municipalities ascertain the facts underlying their housing problem, and examine what would be involved financially and otherwise if they were to contemplate positive action jointly with other governments.

There is nothing so convincing as facts. And if these are clearly established municipal authorities will find it immeasurably easier to make up their own minds about what should be done and to take action with the blessing of the majority of their citizens. After munici-

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(1) See also footnote (1) on page 186.

(2) The assumption of capital cost of $7,000 does not include an allowance for slum clearance cost and re-housing expenditures. The scheme analysed here is the simplest type of project being built on new residential land probably on the outskirts of the city where sites are more plentiful and land is available more cheaply. Re-development schemes like Toronto's Regent Park project might add considerably to the cost and a new set of calculations would be required.

palities have established what their immediate housing needs are and what they would like to do about them jointly with other governments, their proposals will certainly receive earnest and sympathetic consideration of provincial and Federal authorities alike. And as proposals become agreements and agreements become new houses for Canadians another pillar will have been added to the housing effort of the Canadian people.

TABLE 1.—POPULATION, HOUSEHOLDS AND INCOMES—FOUR GREATER CITIES

Greater City	Population 000	Households[1]			Average Annual Income for Household $	Distribution of Annual Income					
						Lower Third		Middle Third		Upper Third	
		Owner-Occupiers 000	Tenants 000	Total 000		Number 000	Upper Boundary $	Number 000	Range $	Number 000	Lower Boundary $
Montreal	1,418	38	323	361	3,200	121	2,250	121	2,250—3,250	121	3,250
Toronto	998	157	128	285	3,500	95	2,650	95	2,650—3,650	95	3,650
Winnipeg	319	51	35	86	3,050	29	2,250	29	2,250—3,200	28	3,200
Vancouver	516	92	50	142	3,100	47	2,300	47	2,300—3,200	48	3,200
Four Greater City Total	3,251	338	536	874	3,250	292	2,400	292	2,400—3,400	292	3,400

(1) Households approximate "spending units", the term used by the Dominion Bureau of Statistics in the sample survey. This and subsequent tables refer to spending units of two or more persons, and therefore exclude single person spending units. The source of the data is given on page 186.

TABLE 2.—MONTHLY OPERATING COSTS OF ONE LOW-RENTAL HOUSING UNIT—FOUR GREATER CITIES

(IN DOLLARS)

Greater City	Amortization of Capital[1]	Local Taxes	Other Operating Expenses						Heat and Domestic Hot Water	Total
			Insurance[2]	Maintenance and Repair	Light and Power[3]	Janitor Costs	General Administration	Sub-total		
Montreal	22.50	7.00	1.75	5.00	1.75	3.50	3.50	15.50	7.00	52.00
Toronto	22.50	7.00	1.75	5.00	1.75	3.50	3.50	15.50	6.50	51.50
Winnipeg	22.50	7.00	1.75	5.00	1.75	3.50	3.50	15.50	7.50	52.50
Vancouver	22.50	7.00	1.75	5.00	1.75	3.50	3.50	15.50	5.50	50.50
Four Greater City Average	22.50	7.00	1.75	5.00	1.75	3.50	3.50	15.50	6.60	51.60

(1) On the basis of capital costs of $7,000 fully amortized over 50 years at 3 per cent.
(2) Covers fire and public liability insurance.
(3) Non-residential light and power requirements.

TABLE 3.—INCOMES AND SHELTER EXPENDITURES OF HOUSEHOLDS IN LOWER INCOME THIRD—FOUR GREATER CITIES

Greater City	Tenant Households 000	Average Annual Income[1] $	Actual Annual Shelter Expenditures		Shelter Expenditures Equal to 25 Per Cent of Income	
			Amount $	Per Cent of Income	Annual $	Monthly $
Montreal	109	1,785	351	20	446	37
Toronto	48	2,057	447	22	514	43
Winnipeg	13	1,696	330	19	424	35
Vancouver	18	1,672	354	21	418	35
Four Greater City Average	188	1,837	374	21	459	38

(1) Weighted average of annual incomes of owner-occupiers and tenants.

TABLE 4. — MONTHLY ECONOMIC AND SUB-ECONOMIC RENTALS — FOUR GREATER CITIES

(IN DOLLARS)

Greater City	Economic Rentals[1]	Sub-Economic Rentals		Rental Subsidies	
		Range	Average[2]	Range	Average
Montreal	52.00	25.00 — 47.00	38.50	5.00 — 27.00	13.50
Toronto	51.50	25.00 — 50.00[3]	39.00	1.50 — 26.50	12.50
Winnipeg	52.50	25.00 — 47.00	35.50	5.50 — 27.50	17.00
Vancouver	50.50	25.00 — 48.00	36.50	2.50 — 25.50	14.00
Four Greater City Average	51.60	25.00 — 48.00	38.00	3.60 — 26.60	13.60

(1) Equal to monthly operating costs, as shown in Table 2.
(2) Allowing for a minimum rental of $25 irrespective of income.
(3) Of the 48,000 households in the lower income third living in rented quarters in Greater Toronto, about 37,000 were in the less than $2,400 group and 11,000 had incomes between $2,400 and $2,650. Allowance is made above only for the less than $2,400 group, since the $2,400 to $2,650 group is assumed to be able to afford economic rentals.

TABLE 5. — FEDERAL AND PROVINCIAL SHARE OF CAPITAL COSTS AND RENTAL SUBSIDIES — FOUR GREATER CITIES

(IN DOLLARS)

Greater City	Capital Costs			Rental Subsidies[1]					
				Monthly			Annual		
	Federal Government	Provincial Government	Total	Federal Government	Provincial Government	Total	Federal Government	Provincial Government	Total
Montreal	5,250	1,750	7,000	10.12	3.38	13.50	121.44	40.56	162.00
Toronto	5,250	1,750	7,000	9.37	3.13	12.50	112.44	37.56	150.00
Winnipeg	5,250	1,750	7,000	12.75	4.25	17.00	153.00	51.00	204.00
Vancouver	5,250	1,750	7,000	10.50	3.50	14.00	126.00	42.00	168.00
Four Greater City Average	5,250	1,750	7,000	10.20	3.40	13.60	122.40	40.80	163.20

(1) See Table 4.

TABLE 6. — ANNUAL MUNICIPAL BUDGET FOR INDIVIDUAL LOW-RENTAL HOUSING UNIT — FOUR GREATER CITIES

(IN DOLLARS)

Greater City	Expenditures		Receipts		
	Capital Costs[1]	Contribution to Annual Rental Subsidies[1]	Annual Amortization of Capital Costs[1]	Annual Local Taxes	Total
Montreal	875	20.00	34	84	118
Toronto	875	19.00	34	84	118
Winnipeg	875	25.50	34	84	118
Vancouver	875	21.00	34	84	118
Four Greater City Average	875	20.50	34	84	118

(1) On the assumption of the province and municipality each sharing half of the 25 per cent with the Federal Government contributing the remaining 75 per cent of capital costs and sharing to the same extent in operating profits and losses.

OFFICE BUILDING FOR GREENSPOON FREEDLANDER AND DUNNE, MONTREAL, QUEBEC

GREENSPOON, FREEDLANDER AND DUNNE, ARCHITECTS

Photographs by Wal-Mir

OFFICE

ENTRANCE STAIR HALL

WINNIPEG WINTER CLUB, WINNIPEG, MANITOBA

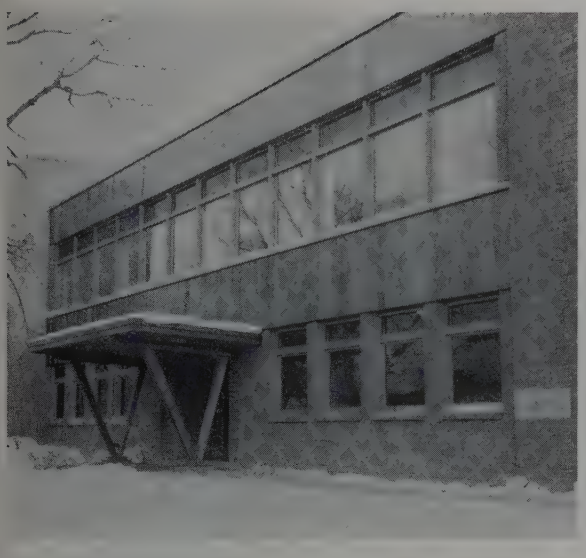
MOODY AND MOORE, ARCHITECTS

MAIN LOUNGE

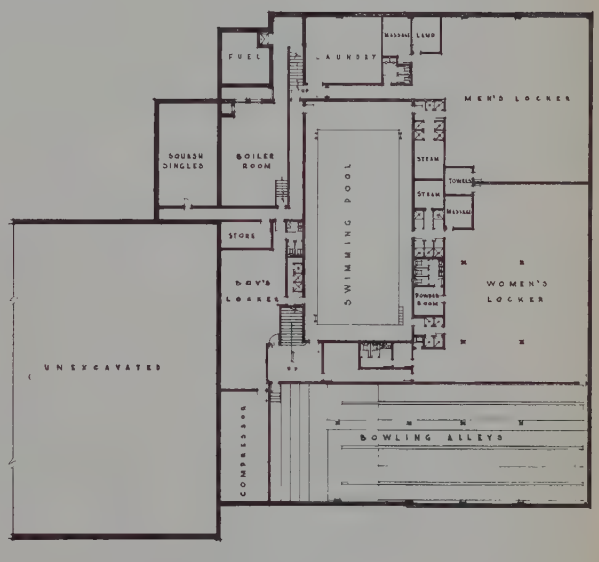
RIVER AVENUE ELEVATION AND MAIN ENTRANCE

REAR ELEVATION

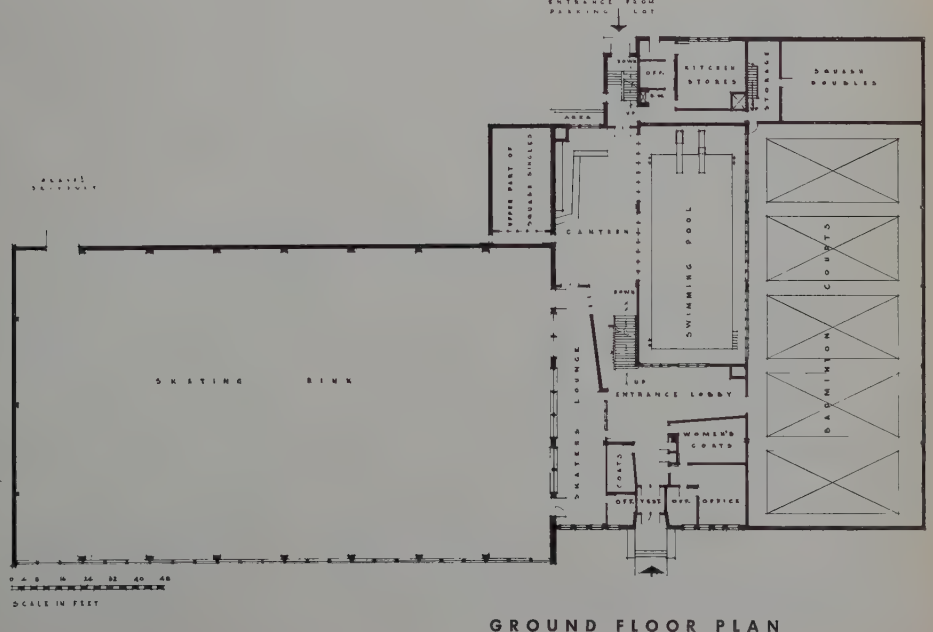
SECOND FLOOR PLAN



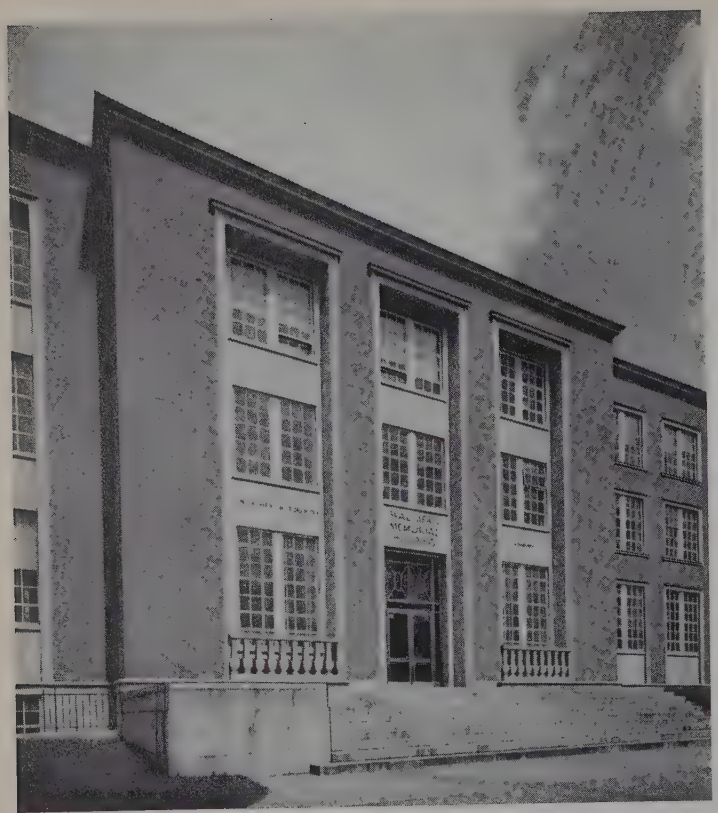
MAIN ENTRANCE



BASEMENT FLOOR PLAN



GROUND FLOOR PLAN



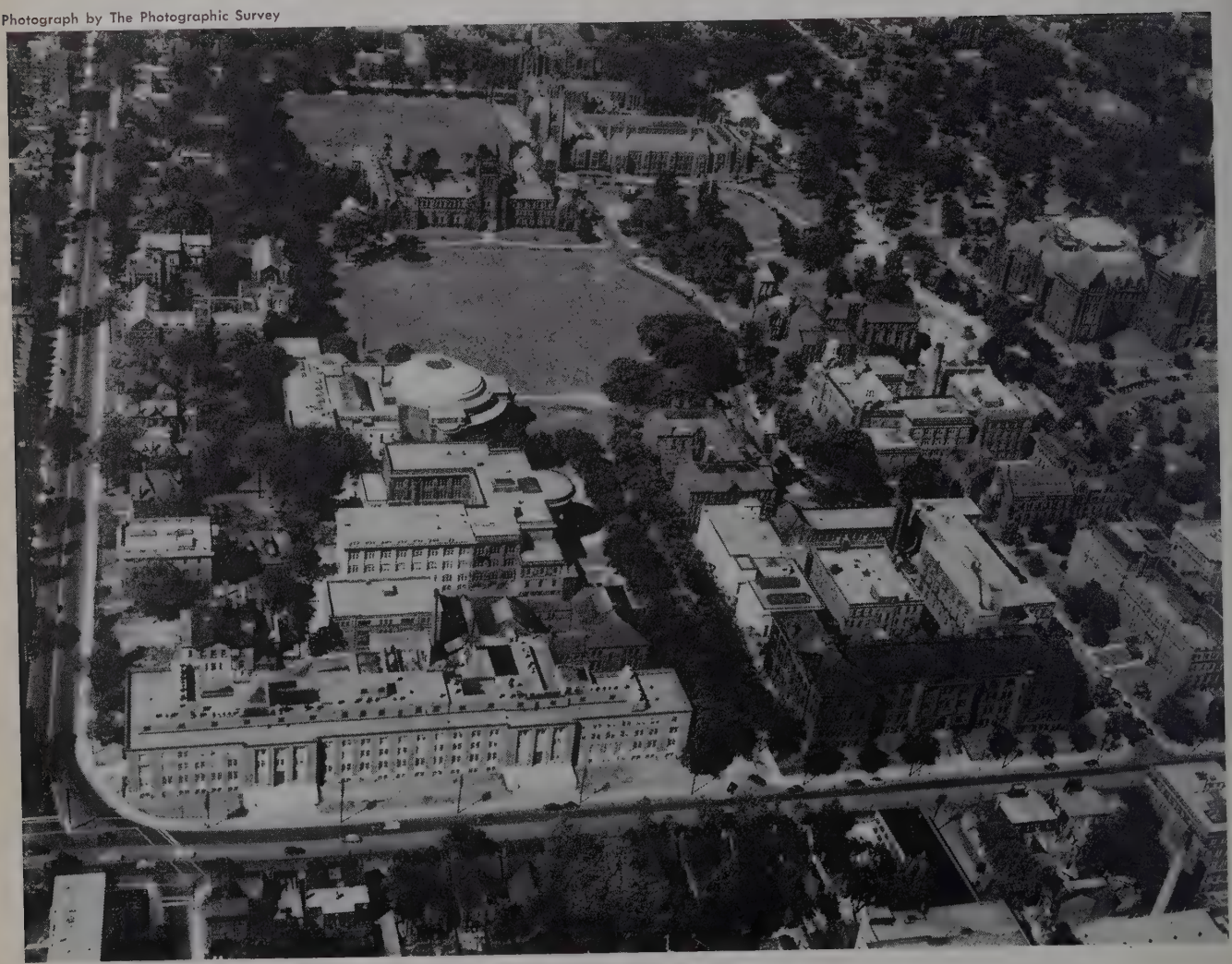
Photograph by Warner Bros.

WALLBERG MEMORIAL BUILDING, UNIVERSITY OF TORONTO, TORONTO

PAGE AND STEELE, ARCHITECTS

MAIN ENTRANCE

Photograph by The Photographic Survey



FIRST FLOOR

LEGEND

1. Teaching Laboratory
2. Teaching Laboratory
3. Demonstrator's Office and Laboratory
4. Lecturer's Office
5, 6 and 7. Women's Lavatory
8. Men's Lavatory
9. Research Laboratory
10. Professor's Laboratory
11. Professor's Office
12. Lobby
13. Inquiry
14. Research Laboratory
15. Research Laboratory
16. Gas Analysis
17. Organic Analysis
18. Professor's Office
19. Professor's Laboratory
20. Laboratory
21. Laboratory
22. Laboratory
23. Laboratory
24. Conference Room
25. Lobby
26. Office
27. Library
28. Teaching Laboratory
29. Balance Room
30. Office
31. Office
32. Coat Room
33. Men's Lavatory
34. Men's Lavatory
35. Office
36. Research Laboratory
37. Lecture Room
38. Preparation Room
39. Apparatus
40. Janitor
41. Panelboard
42. Lecture Room
43. Chemical Engineering Laboratory
44. Office
45. Shower
46. Storage
47. Apparatus Shaft
48. Janitor
49. Lecture Room
50. Coat Room
51. Lecture Room
52. Preparation Room
53. Laboratory
54. Janitor
55. Janitor
56. Stores
57. Balance Room

LIBRARY

LECTURE ROOM

MAIN ENTRANCE

MAIN ENTRANCE LOOKING SOUTH

TYPICAL STUDENT LABORATORY

Photographs by Rice & Bell

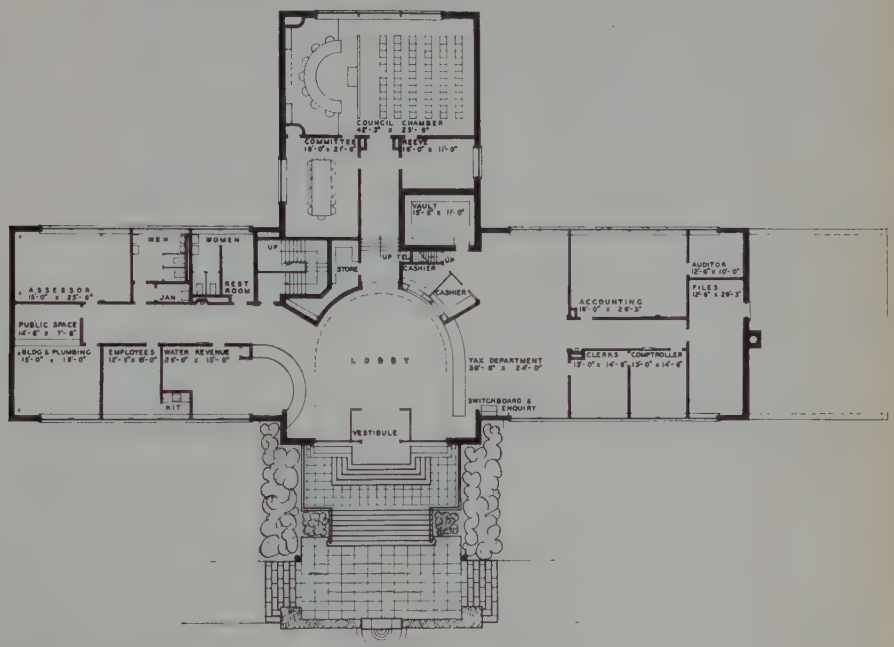
ENGINEERING LABORATORY

WALLBERG MEMORIAL BUILDING

UNIVERSITY OF TORONTO

EAST YORK MUNICIPAL BUILDING, TORONTO

SHORE AND MOFFAT, ARCHITECTS



SECOND FLOOR PLAN

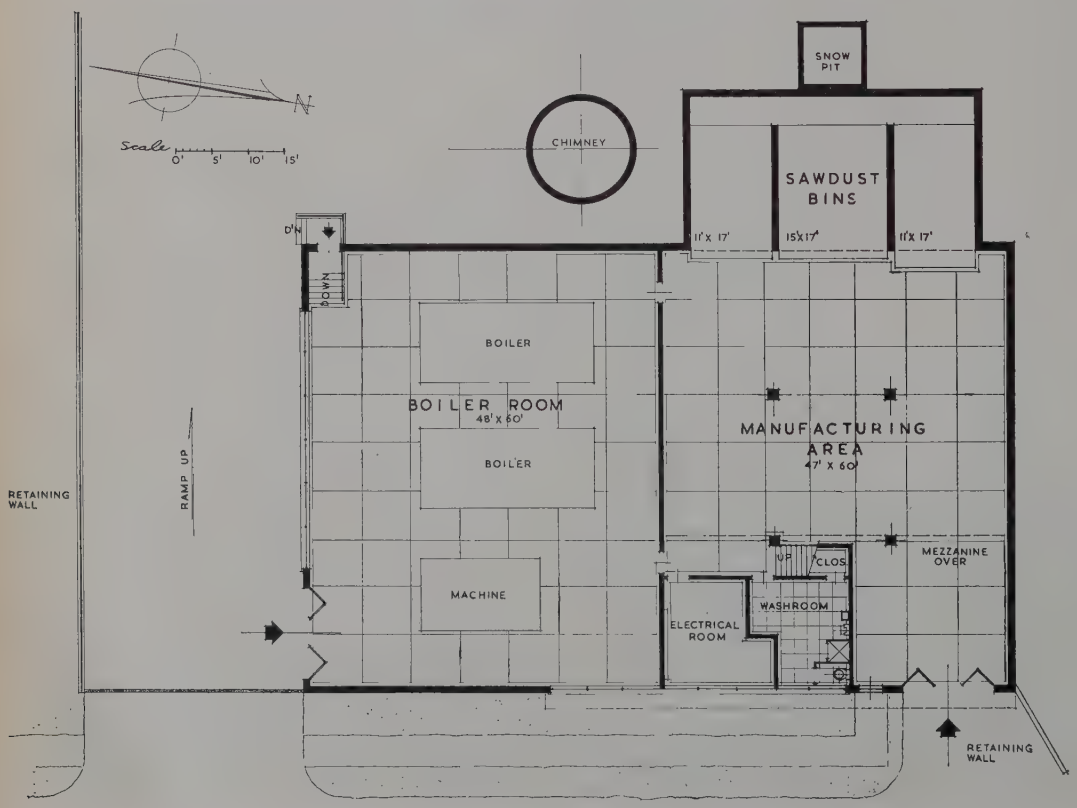
FIRST FLOOR PLAN

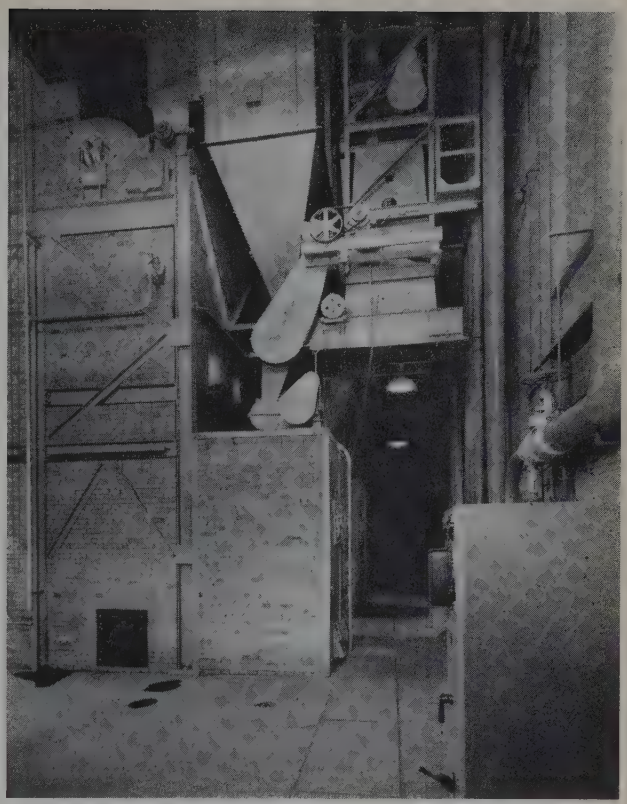
Photograph by Nelson C. Hitchinson

CANADIAN WIREBOUND BOXES LIMITED, TORONTO

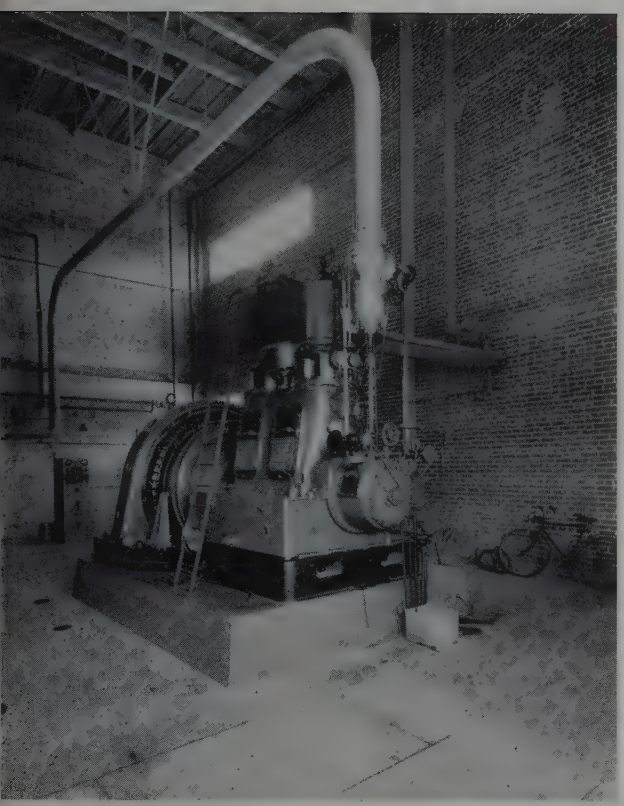
PARROTT, TAMBLING AND WITMER, ARCHITECTS

VIEW FROM SOUTHWEST



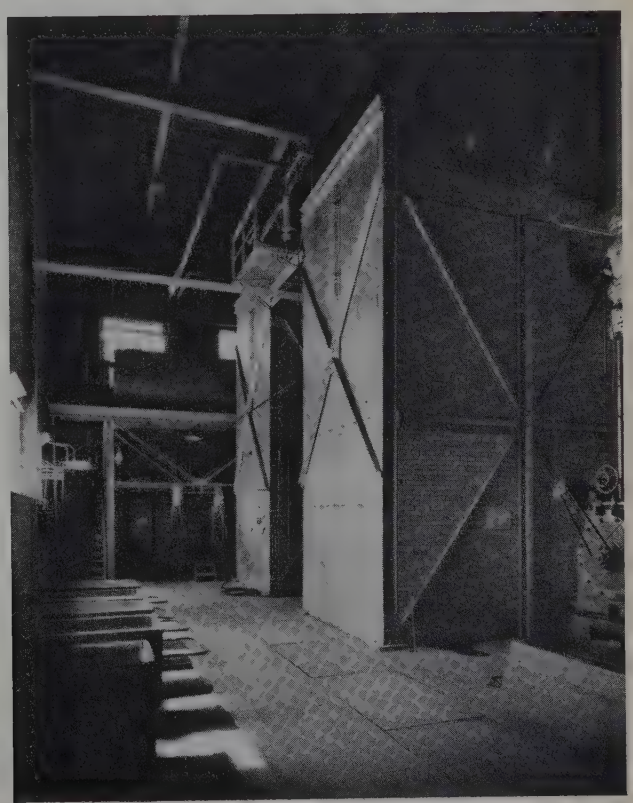


SAWDUST CONVEYORS AND BOILERS



GENERATOR

BOILERS



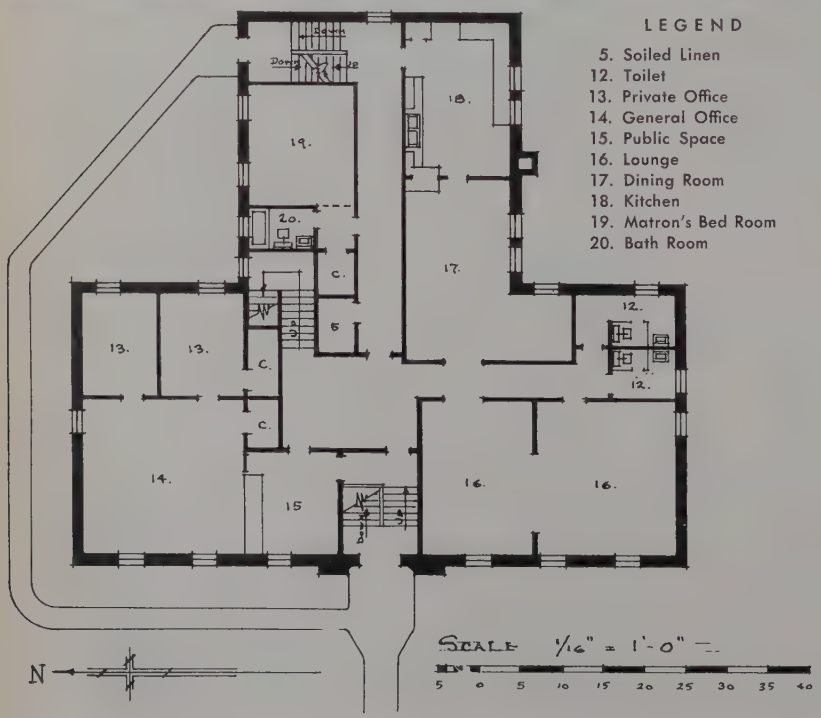
THE SASKATOON LIONS' CLUB HOME FOR THE BLIND, SASKATOON, SASKATCHEWAN

WEBSTER AND GILBERT, ARCHITECTS

LEGEND

5. Soiled Linen
7. Storage
21. Bed Room
22. Toilet and Bath Room
23. Linen Room

FIRST FLOOR PLAN



LEGEND

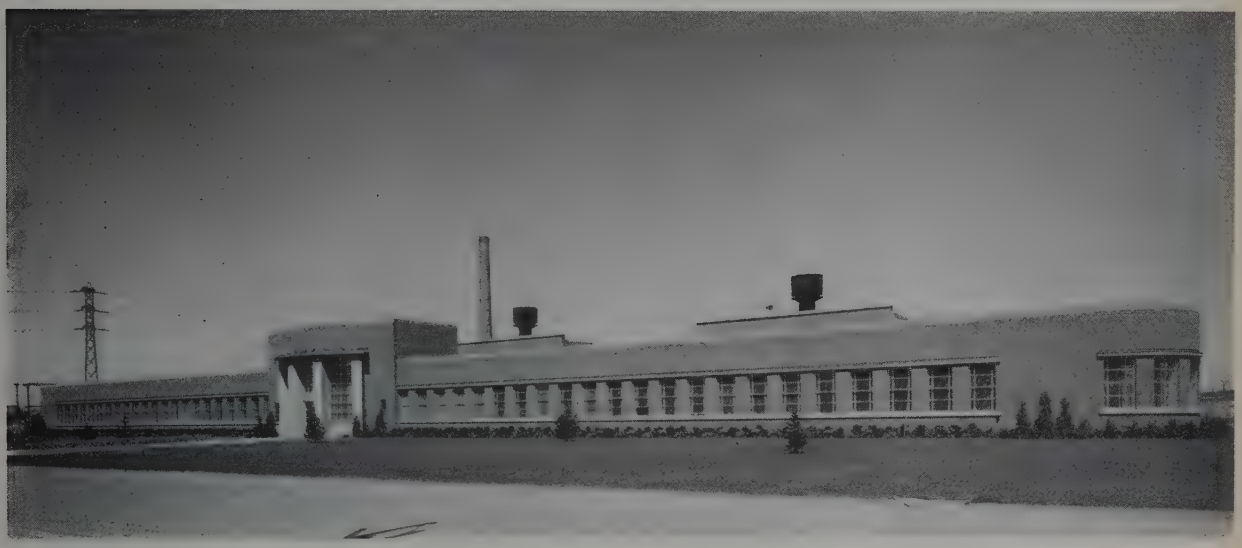
5. Soiled Linen
12. Toilet
13. Private Office
14. General Office
15. Public Space
16. Lounge
17. Dining Room
18. Kitchen
19. Matron's Bed Room
20. Bath Room

GROUND FLOOR PLAN

CANADIAN PAD AND PAPER COMPANY LIMITED, TORONTO

N. A. ARMSTRONG, ARCHITECT

ENTRANCE DETAIL



Photographs by Warner Bros.

HOLLINGER BUS LINES TERMINAL, TORONTO

PARROTT, TAMBLING AND WITMER, ARCHITECTS

Photograph by Canadian Colour Photographers

COCA-COLA LTD., VANCOUVER, BRITISH COLUMBIA

MATHERS AND HALDENBY, ARCHITECTS
McCARTER AND NAIRNE, CONSULTING ARCHITECTS

REAR ELEVATION

Photographs by Leonard Frank

ENTRANCE LOBBY

THE STANDARD FORMS

By A. L. FLEMING, K.C.

The Institute makes available to its members the following forms:—

Agreement Between Client and Architect
Construction Tender
Construction Contract — Stipulated Sum
Construction Contract — Cost Plus Percentage or Fixed Fee

THE Province of Quebec Association of Architects provides forms corresponding to the above and there is very little demand from Quebec for the R.A.I.C. documents. A form of construction contract differing from the R.A.I.C. forms has been approved by the Alberta Association of Architects. A study of the Quebec and Alberta forms and the schedules of professional charges and conditions of engagement of the various provincial associations discloses no reason from a legal standpoint against the adoption of some standard forms by the Institute for use throughout the Dominion.

The average annual demand for the Client — Architect form is 1,500 copies; for the Construction Contract — Stipulated Sum, 5,250 copies; for the Construction Contract — Cost Plus, 2,250 copies; for the Tender form, 1,000 copies.

The great difference in the demand from the profession for the Architect — Client and the Construction forms makes it plain that architects will run risks themselves which they will not approve in their clients. Many architects make it a practice to put their own arrangement in a letter, which frequently does not state more than the percentage to be charged. Sometimes the letter encloses the Schedule of Fees and Conditions of Engagement published by a provincial association and ties these into the retainer. In a number of important particulars these local Conditions of Engagement differ from the Institute's form.

The Construction Contract — Stipulated Sum is in very general use on the medium type of jobs. In very large undertakings the R.A.I.C. Standard Form is used as a guide but there are generally special features of the work which require particular treatment. Where contracts for construction are entered into by government departments, they are generally prepared by law officers of the Crown to cover the particular job, with certain general conditions common to all such contracts made by the government.

The standard form of Construction Tender provides that if the tender is accepted an agreement shall be executed on the R.A.I.C. standard form of Construction Contract. It is surprising to learn that copies of the latter form are not generally sent out with the Tender form. There is a danger in that practice. It leaves it open to a tenderer desiring to escape from his bid to contend when asked to sign the contract, that he was misled as to its contents or wrongfully kept in ignorance of them. On the other hand, the client whose agent, the architect, has sent out the Tender form with the above proviso cannot escape from using the standard form if he accepts the tender and he may not later vary the terms of the standard form without the consent of the contractor when engrossing it for signature. It is, therefore, important for the architect to satisfy himself before sending out the standard form of Tender that the R.A.I.C. standard form of Construction Contract will be adequate for the particular job. If he has the slightest doubt about it he should tell the client to take the advice of his solicitor.

It has been some years since the forms issued by the Institute were thoroughly reviewed to determine whether they are all that might be desired. It is true that there are very few reported court cases where the forms have been discussed and almost none where they have been given an interpretation different to that generally attributed to them by the profession. It is also a fact that in response to a call sent out to the profession for information as to difficulties experienced in the use of the forms, there were only three replies. Nevertheless, there are numerous points where it appears that the forms might be improved and brought into line with present day practices.

As to the court cases, it was suggested in one that the Client — Architect standard form did not go far enough to entitle the architect to his full percentage if he had not furnished his client with an estimate before preparing his working drawings. In another, it was argued that under this form, a client could require a reduction in the basic fee because there had been no preliminary studies, the architect having plunged directly into the preparation of working drawings and specifications. Both these contentions were rejected by the decisions of the Courts.

While there are apparently no reported difficulties regarding them, it is surprising that certain clauses have not created problems. Take for example the arbitration clause in the Architect — Client agreement. It requires two arbitrators to hear all the evidence and they may only bring in a third if they disagree. Disagreement would require the evidence to be taken again from the beginning.

Again, turning to the Construction Contracts, one finds that better provision might be made for the treatment in certificates of material not incorporated into the building. In some jurisdictions, such material might be removed by mechanics' lien procedure after having been included

in calculating the amount for the certificate. These Construction Contract forms also contain inconsistent clauses as to the way notices may be given, and the second paragraph of Article 2 of the General Conditions contemplates cases where work not shown in the specifications but distinctly noted on the drawings may be executed, while the very next paragraph states that if the specifications conflict with the drawings, the specifications shall govern.

Uncomplimentary things might also be said of the forms because of their lush verbiage. This characteristic probably had its origin in the adoption of entire clauses from the standard forms of older associations of architects. These clauses were left untouched in various hasty and partial revisions because they seemed to "work". Where the clauses open to such condemnation are of more recent date, could the party who drew them (see heading!) be suspected of having assumed that as little as possible should be left to good sense and sound judgment in agreements between architects, clients and contractors? If such a notion was, indeed, entertained it must now be entirely dispelled!

The Institute's printer, on the other hand, has gone far in the opposite direction by leaving no space at the end of the Conditions in the Architect – Client form for the signatures of the parties. These are clearly called for in the body of the document in order to identify the Conditions. As a result, the Conditions are rarely signed, leaving the legal effect of the whole arrangement in such cases not free of doubt. Is the paucity of cases before the Courts involving the architect to his disadvantage a result of his great native genius or only the intervention of a benevolent Providence?

The standard forms also appear to be out of date in some respects. The Client – Architect agreement is not in line with the current practice regarding the payment of engineers. Further, the American Institute of Architects' standard form contemplates monthly payments on the architect's fee during the preparation of specifications and working drawings. Under our form an architect might be required to wait until the completion of the working drawings and specifications before his payments are brought up to 60% of his fee, unless the work is abandoned in the meantime. Our form moreover, does not provide for the payment of a retainer on the execution of the agreement and there are not a few who think that it should do so.

In the case of the Construction Contract, the provisions for insurance create a constant source of argument. The American Institute of Architects has abandoned the idea of requiring the contractor to carry the insurance, and has placed this responsibility on the owner. He pays for it anyway.

The question is frequently asked whether it is not unwise for the architect, a professional man, to attempt to tie his client by a long formal agreement. There are many cases where the architect – client relationship has been maintained satisfactorily without more than a word-of-mouth understanding as to the fee to be paid. However, such arrangements will only succeed where both parties are gentlemen, where neither desires to cheat or overreach the other, and where both are ready to resolve differences in favour of the other, even to their own hurt. If the client has the knowledge or experience necessary to understand what should be expected of an architect, and is honest, reasonable and fair, the undertaking can be completed without friction or disagreement, provided the architect, a gentleman, performs his services with professional skill.

A young architect is usually without sufficient financial resources to permit sacrifice of much of his fee to a client's inexperience, and there are few of any age who can reserve their services to persons familiar with building work and of known reasonableness, integrity and financial worth.

Then there are the corporate clients who have neither bodies to be kicked nor souls to be damned, but directors and officers who are only permitted to expose assets to financial liability by defined processes, auditors who may not pass every expenditure, and where changes in personnel may leave the architect dealing with a client that has literally no knowledge or recollection of the oral retainer.

The architect as a professional man owes it to his client not to lead him into responsibilities, particularly to his architect, of which the client is ignorant or which he may not fully understand. The architect can avoid this by using a good Client – Architect form and he should have the moral courage to place such a form before his client before he commences his work. No architect should feel very happy in collecting fees from a client who is really ignorant of his responsibility until informed of it by his lawyer or charged with it by the Court. If, however, the client has signed the standard form, there need be no misgivings about asking him to observe its provisions.

While it may need some special pleading to impress architects with the desirability of using the standard form in their arrangement with a client, they are fully alive to the importance of formal contracts between the client and the contractor. It would be a bold man, indeed, who would leave the terms on which a building is to be constructed to the word of mouth and memories of the parties.

The question, however, is occasionally asked, "Why not a short simple form?" The questioner should be confronted with a standard form and asked what he would omit. He would probably put his finger on one of the clauses other than those descriptive of the work or providing for payment. If asked to read it he immediately begins to wonder whether the situation which is contemplated may reasonably be ignored and he will generally say that it cannot.

In appointing and instructing a committee to make a thorough revision of the standard forms, the Council of

(Continued on page 210)

HOUSING DESIGN

By SAMUEL RATENSKY

A Paper read at the Seminar on Physical Planning at the Diamond Jubilee Convention of the O.A.A.

I HAVE assumed, in preparing these notes on the Design of Public Housing, that an appraisal of our failures and our successes, over the past fifteen years in the United States, and more specifically in New York City, would provide the only reasonable justification for my appearance here as a speaker. For, although we leaned heavily, in the early years of our public housing work, on the experience of other countries, and continue to learn from study of the thinking and the solutions in other places, we know, and must accept as a basic tenet of design, that good design can be achieved only through a searching and thorough formulation and a fresh and imaginative solution of each project program in its own local, particular, and even peculiar terms.

Clichés of thinking, in the formulation of standards or design policy, however solidly embedded in bureaucratic bulletin, impede good design no less than clichés of architectural vocabulary, no matter how fashionable.

At the outset of the Public Housing Program in the United States, housing design was the country cousin in architectural practice. Except for a small number of pioneers like Henry Wright, architects knew little about housing design, and cared less.

Housing was first recognized and established as a public purpose substantially as the result, over a period of many years, of the work of social reformers. Consequently, the emphasis at the beginning was on minimum standards of decency, sanitation, and safety; on maximum durability of structure and equipment, at minimum operating and maintenance cost, over a long estimated life of fifty or sixty years.

The problem, stated merely in these terms, was an enormous challenge, both to public administration and to the Architectural profession, (1) to define and to design a minimum acceptable human habitation, and (2) to accomplish this at a sufficiently low first cost, but not necessarily the lowest; the controlling consideration was cost of use, compounded of the cost of money and the cost of operation over the estimated life.

Very few of the architects, however, accepted this as a challenge to their designing prowess, but, instead, defeatedly accepted the limitations of cost and of standards as an inescapable strait-jacket, resulting in an end product with which, far too often, neither the architect nor the public has been content.

But over the past fifteen years public housing has acquired several other dimensions. Inescapably, it has become a major tool, immediately at hand, for the rebuilding, if not the replanning, of cities. Further, the environmental standards of all public housing, whether well or poorly designed, have been so noticeably superior to those of most private housing, at any rental level, that public housing has had a far-reaching and beneficial influence on the planning of investment building. And finally, notably in New York City, the sheer volume and extent of public housing, past, present and anticipated, are so great that it is becoming a vital feature in the physiognomy of the city. What the Architects do in the way of design is of grave concern not only to the citizens who live or hope to live in housing projects, but to all the citizens who cannot escape them as they go about their daily lives, and are in one way or another affected by the pattern of their city.

Consequently, today, public housing design receives the attention of the most talented and successful offices and the constantly searching spotlight of public interest, scrutiny and debate. Everyone has a fully formulated opinion on the Architects' failure or success. Public Housing has become too significant and omnipresent an element in our physical environment for any of us to take the quality of its design lightly.

I will list here in brief outline — with the hope that more detailed exploration may follow in the discussion — those aspects of our experience which have had the greatest bearing on the quality of our design:

1. — Independent Office vs. Bureau Design

We prefer to work with the independent architect's office, under contract, designing each project, rather than establish a central bureau of design, although we know that the former method is more costly. Bureaus, even the best-manned, tend to think in grooves, to repeat their successful solutions, and inevitably to become ossified. Working with independent offices, we bring to the solution of housing problems the experience gained in the whole range of architectural practice and constantly expand the range of solutions. One outstanding successful solution, we feel, is well worth the price of three or four mediocre designs.

2. — Administrative Procedures

The relationship between the Architect and the Housing Agency is crucial to the success of the design. Here we have developed, over the years, procedures which channel to the Architect the great body of experience — operating and construction — which affects design, but which do not inhibit him from making a creative contribution. We do *not* give the Architect a canned plan and do not favor the development by the Agency of standard types of plans. We do give the Architect a site; a topo-

graphic survey; data on sub-surface conditions; a general description of the scope and character of project desired (which his analysis may frequently modify); a budget; a bible called "Memo to Architects" which sets forth design standards and policies (based both on the requirements of Federal and State financing agencies and our own operating and construction experience); a set of standard detail drawings, which he can incorporate bodily in his own working drawings or modify as conditions require; and a set of standard specifications which he amends, as required, to make them applicable to his job.

But most important of all we assign to him a staff architect, called a Project Adviser, who is a specialist in housing design and who lives with the job from start to finish. It is the Project Adviser's responsibility to act as the chief point of contact between the Architect and the Housing Agency, during the design phase, and although he must be ever vigilant to ensure the project's compliance with standards, policies and cost limitations, he must also keep alive the Architect's enthusiasm and creative joy.

3. — Standards

The experience in the United States has been a constant raising of design standards. Perhaps our sights were set too low in the beginning.

While the formulation of standards is the responsibility of government, only the architects' study and analysis can lead to a sound development of standards and he bears a continuing responsibility to examine, re-examine and develop new concepts and new forms. I might say here, parenthetically, that while those of us who work on Housing Design bear a solemn responsibility to produce the most appropriate types of housing at the most reasonable costs of use, we should not be completely terrified by those who criticize our designs as too good or too extravagant. By and large, they are the people who will criticize public housing anyway. The evaluation that has lasting value is "Are the dwellings and the project good enough for successive generations of families to call home?" Also we must, if we can, avoid the possibility 20 or 30 years from now that our dwellings may be hopelessly obsolete.

In our work in the United States we have achieved economies through such means as the elimination of doors on closets and of showers in bathrooms. I cannot say that these are popular economies nor can I report that they represent much ingenuity in design. Possibly a suit of clothes could be produced more economically with only one sleeve and one trouser leg, but if it is true that proper clothing of the human frame requires both sleeves and both legs, the challenge to the designer and to the producer is to create the total garment at the price of the one-arm, one-leg suit.

In any comparison of costs it is important to balance cost against cost within the same reference frame of amenity. Costs cannot be balanced against amenity and any large saving in cost must be fully understood and accepted for its effect on livability or long-term suitability.

4. — Study of Dwelling Types

There is no more controversial subject, and none more vital to the success of your design, than the choice of dwelling type. Those of us who live in and with New York City feel that the patterns of living in New York are atypical and that certainly those families who live near the center of the city cannot expect the emoluments of life inherent in an individual dwelling with its own plot of ground in a community of low density. Nevertheless, ways must be found of making family life in the great city more peaceful, private and humane. Our project design is oriented toward that goal. Extensive study of building types and dwelling unit types, and of the living patterns and costs which they impose, is essential to the achievement of suitable and acceptable projects at reasonable cost.

In New York City, where our design is governed by a State Multiple Dwelling Law, a local Building Code, and a local Zoning Ordinance, we have run the gamut of plan types, from the simple rectangular building unit to the highly complex, multi-angled, many-winged plan, back to the simple rectangular unit. In our attempt — the goal being economy — to develop plan types with the maximum number of rooms and of dwelling units permitted by law per stair and elevator core, we have, perhaps, made significant sacrifices of essential amenities, only to discover that the simple -and straightforward plan is also most economical. John Riley, our Director of Development in New York, says, pithily, "Ingenuity is not a substitute for sound planning".

5. — The Objective

The design of public housing involves the provision of suitable and acceptable living accommodations for a very wide range of families, with widely differing tastes, habits and equipment. It differs significantly, therefore, from the custom design of the individual dwelling, and idiosyncracies of architectural style must be given severe scrutiny before their soundness can be assumed. The open plan may be just what some particular client wants, but is it a suitable plan for most families? Subtle or dramatic variations of color from wall to wall may be splendid where the client is decorating to your concept, but, how will they fare with the tenants' mauve brocatelle over-stuffed Grand Rapids living-room suite?

I am not saying that the architect's signature should not be written on his project, nor that there should not be, desirably, evident design variations from project to project. I am saying that his design should be soundly based in an understanding of the patterns of life and the desires of the people to be housed, with that ephemeral and beautiful quality added which distinguishes a home from a house.

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NEWS FROM THE INSTITUTE

ALBERTA

There are occasions when humanity is overtaken by unforeseen and perhaps unforeseeable disaster and "distress o'ercomes them houseless from the unhinting sky". Foresight is one of the chief elements of success and, more and more, with some slight degree of success we endeavour to read the signs that give us the clues to the future. Our age has its own full share of distresses of various kinds. Quite prominent amongst these are the evils attending the too rapid increase of population in our congested cities. We give the name of prophets and forerunners to those who first point out to what evils the tendencies of the day must lead, perhaps rather hoping that they may be wrong. Probably the most general warning in regard to our cities that these forerunners have long pointed out is the need for a totally fresh conception of the whole lay-out of cities. This conception involves an altogether more spacious arrangement than has hitherto been dreamed of as at all possible. Yet it must somehow be achieved. First, we begin to feel that the shoe is pinching; before long, — so fast are things now moving, — we begin to squeal and after that to do something about it.

One of the pressing troubles of the day that has taken our cities by surprise is that of down-town parking which has risen like a flood beyond all calculated heights. Even professional city planners appear only very recently to have realised the imperative demand for a solution to this problem. A few years ago any one proposing that adequate space should be left for this purpose in the midst of some retail district would have been promptly told that such a proceeding would be quite uneconomical because more taxes can be derived from that area by leaving it to be built over by retail stores. It is now fairly widely admitted that down-town retail property steadily falls in value when near-by parking space is not available. Business then drifts to the outskirts and the rate of central taxation can no longer be maintained. This natural centrifugal force may be indeed the true key to the solution of the problem; but it involves hardship on those who did not take it into their calculations. Apart from the question of shopping, large parking space must always be required in the neighbourhood of buildings for large public meetings.

Another increasing demand for more spread in city planning is the call for recreational space. Fifty years ago children for the most part played in the street or on vacant lots, or perhaps not at all. Now, the increased volume and pace of traffic is taking toll of children's lives; the public have become health-conscious under the teaching of public health officers, and the statistics of crime have demonstrated that play is the essential occupation of children without which they become stunted in mind and body and for that reason tend to end up in jails or hospitals. Whereas a few years ago recreational areas were measured in yards they are now demanded in acres.

There are many respects in which recent tendencies have rapidly made calls upon our cities that have been inadequately met. Prominent among these, in this province at least, is the requirement of accommodation for travellers. Political, learned, sporting and other meetings and conventions multiply steadily in number and importance. Hotel space is strained and insufficient. In this case again the need of cities for increased taxation militates against efficiency. Hotels being taxed at so much per room raises the serious consideration whether there is to be any profit in the business. In summer time there is a fast rising flood of motoring tourists. Here again provision is failing to meet demand. The usual short time economy of a city defeats both the immediate needs and the long time efficiency. Not that city councils are altogether to blame in the matter. They too are under irresistible pressures.

Cecil S. Burgess

MASSACHUSETTS INSTITUTE OF TECHNOLOGY ANNOUNCES

The summer program in Space Heating with Solar Energy will be given Monday through Friday from 10 a.m. to 4 p.m., August 21 to August 26, 1950.

MORNING CLASSROOM SECTIONS will be devoted to presentation of the fundamental background material of the course embracing the following subjects: Solar Energy Utilization, Solar Incidence, Transparent and Absorbent Materials, Solar Collector Heat Losses, Solar Window Design and Control, Heat Transport — Collector to Use, Overall Performance of Solar Collectors, Storage and Economic Factors, Engineering Application and Controls, Architectural Problems.

AFTERNOON SYMPOSIUM SECTIONS will be devoted to presentation of papers by several leading investigators in the field of solar heating, followed by discussion periods. It is expected that among those leading symposium sections will be: Mr. E. R. Ambrose, American Gas and Electric Service Corporation, Prof. L. B. Anderson, Dept. of Architecture, M.I.T., Mr. Eugene Ayres, Gulf Research and Development Company, Prof. F. W. Hutchinson, Dept. of Mechanical Engineering, U. of California, Mr. George Fred Keck, Architect, Chicago, Dr. George Löf, Director, Industrial Research Institute, Denver, Mr. George V. Parmelee, A.S.H.V.E. Research Laboratories, Dr. Paul A. Siple, Climatologist, Military Geographer for U.S. Army General Staff, Dr. Maria Telkes, Dept. of Metallurgy, M.I.T.

FIRE STATION, MONTREAL

In an editorial in February we referred to a building, which our friends judged to be anything from Frank Lloyd Wright, Chicago, to the Art Nouveau architects in Belgium at the turn of the century. Mr. H. A. Gibeau, Director of Public Works, the City of Montreal, replied immediately to say the building was the Fire Station at Maisonneuve (now part of Montreal). It was built in 1915 and plans were signed by Marius Dufresne, City Engineer and Architect. We are greatly obliged to Mr. Gibeau for his letter and photograph, which we publish on this page for the edification of *Journal* readers.

Editor

OBITUARY

EUSTACE G. BIRD

An architect of prominence in the early part of the century, Mr. Eustace G. Bird passed away in Barrie early in April. He will be remembered as one of those in his profession who did much to establish higher architectural values in classic and commercial buildings in Canada after rather a long period when utility and economy had imposed limitations on much architectural effort.

Born in Barrie in 1870, Mr. Bird started as a student with Strickland and Symons in 1888, and transferred to W. G. Storm in 1890. He went to England in 1892 and was elected an Associate of the Royal Institute of British Architects in 1894. Returning to Canada in 1895, he opened offices in Toronto and Barrie. Mr. Bird went to New York in 1899 to join the firm of Carrere and Hastings, and in 1906 returned to Toronto under the firm name of Carrere and Hastings and Eustace G. Bird, to build the Head Office of the Bank of Toronto. Other commissions were the Royal Bank next to the present high building on King Street, the Royal Bank, Winnipeg, the Transportation Building, Montreal, the Canadian National Railway Building at Wembley Exposition, England, which was awarded the gold medal for the best design and display.

Melville P. White

EARL O. MILLS

Word has just been received that Mr. Earl O. Mills of St. Louis, Missouri, passed away suddenly in Louisville, Kentucky, on April 14th. Mr. Mills served as Consultant for the Metropolitan Plan for Greater Winnipeg during 1945 and 1946, and made many friends in Winnipeg during his visits here.

At the time of his passing, he was visiting Louisville in a consulting capacity, and was preparing to keep an appointment with the Mayor of that city when he was overcome suddenly in his hotel.

Mr. Mills was largely responsible for many of the ideas that were incorporated in the new Winnipeg Zoning By-law, and he gained a reputation in the United States as an author of some of the most progressive zoning legislation in that country. Because of his broad recognition as a competent authority, he was called upon to speak and to write articles on this subject.

Mr. Mills had wide experience in the planning field over the past 30 years, having served in an advisory capacity on planning and zoning matters for some 70 or more cities in the United States and Canada. Recently, he was appointed as chairman of a special committee of the Construction and Civic Development Department of the Chamber of Commerce of the United States, for the purpose of preparing a statement of zoning and civic development. This statement has just recently been published by the Chamber of Commerce and has been lauded widely for its treatment of the subject. He was noted for his advocacy of the principle that the planning of any community should be carried on locally by local people.

For a time, he was also Regional Planning Counsellor for the National Resources Planning Board for the states of Arkansas, Louisiana, Oklahoma and Texas. He was called upon to act as a consultant to various United States federal public housing agencies, and notably was engaged by the Federal Housing Authority as a private architect-engineer for war housing projects at Wichita, Kansas. These projects embraced some 5,600 housing units.

From 1919 until 1932, Mr. Mills was in partnership with Harland Bartholomew, also of St. Louis. At various times, he has been a member of the Board of Directors of the American Society of Planning Officials, and of the Board of Governors of the American Institute of Planners, and served the latter Institute as its president in 1946 and 1947.

Eric W. Thrift

THE STANDARD FORMS

(Continued from page 204)

the Institute has made a timely decision. The forms used by the American Institute of Architects, the Royal Institute of British Architects and certain provincial Associations in Canada are being studied, as well as other forms set out in architectural text books and elsewhere. All reported cases in Canada involving architectural law for many years back, and leading English and American decisions are being considered. A conference has taken place on the forms, between the chairman of the American Institute of Architects' Committee on Standard Documents and the general counsel for the American Institute, and the chairman of your Committee and its counsel. Already a complete redraft of the Architect—Client agreement has been completed and approved by the executive of the Institute and is being sent out for comment to the provincial Associations.

In redrafting the Construction forms it is desirable to have them acceptable to and approved by the Canadian Construction Association. At the same time it must not be forgotten that the architect's first duty is to his client, that he must adequately protect him, and that any form adopted must require the contractor to go as far as he should be reasonably asked to go in creating a relationship that will prove harmonious and that will assure a building completed as the architect has designed it.

The most that the members of the profession should expect of their Association in providing a standard form is one which can be used in the average case. In exceptional cases, it will have to be altered. The members will no doubt look forward with interest to the issuing of the new forms.

(This is the first of a series of articles dealing with legal problems arising in the practice of architecture. It will be followed by an article on the implied term in the professional relationship (requiring the architect to do his work with a reasonable degree of professional skill) and by articles on the expressed terms of the Architect—Client form, the Construction Contracts, and the settlement of disputes in which the architect may be involved.)

CONTRIBUTORS TO THIS ISSUE

Arthur Lyman Fleming

Arthur Lyman Fleming is the senior member of the firm of Fleming, Smoke and Mulholland, Solicitors for The Royal Architectural Institute of Canada. He is an honour graduate of the University of Toronto in Political Science and Law with the degrees of B.A. and LL.B. He graduated from the Osgoode Hall Law School in 1913 and was called to the Bar in that year. He was made a King's Counsel in 1931.

O. J. Firestone

Director of Economic Research, Department of Trade and Commerce, Ottawa, and Economic Adviser to Central Mortgage and Housing Corporation. Has been associated with Government research for the past eight years and is the author of and contributor to a number of Government reports. He assisted in the preparation of the Curtis Report on Housing, published in 1944.

Samuel Ratensky

Chief of Planning, New York City Housing Authority. Studied architecture at the University of Pennsylvania School of Fine Arts and with Frank Lloyd Wright at Taliesin; Executive Secretary and Director of Housing Study Guild, 1934-36 (a non-profit organization for research in technical and social aspects of housing and town planning, directed by Albert Mayer, Lewis Mumford, Clarence Stein, Catherine Bauer, etc.); Research Section, Resettlement Administration Division of Suburban Resettlement, 1936-37 (Greenbelt Towns); Research Director, Paramount Communities, 1937-38; Chief of Research Co-ordination USHA, 1938-43; U. S. Army, Monuments and Fine Arts Officer, 1943-46; Associate Chief and Chief of Planning, New York City Housing Authority, 1946 to present.

BOOK REVIEW

WALLS AND WALL FACINGS
By Denzil Nield, A.R.I.B.A.

Published by E. & F. N. Spon, Ltd., 22 Henrietta St., London, W.C.2, England. Price 18s.

As the note on the cover states, this book is intended as a stop-gap until it is possible to compile an authoritative text-book on the subject. New materials have not yet had time to prove themselves, and the developments of new materials continues.

The arrangement of the book in two parts, "Theory" and "Practice", with clear concise chapter headings, makes it very simple for reference.

Unfortunately, building codes and standards in Britain differ from those in Canada, which is necessarily linked more closely with practice in the U.S.A. Climatic conditions and construction methods differ. There is even a variation in terminology. The book is, therefore, more of academic than of practical interest in Canada.

Walter N. Moorhouse

ACKNOWLEDGMENT

The Editorial Board wishes to express its very great indebtedness to Mr. Robert Moffat, who for some months has been organizing the issue on Schools, which appeared in May.

Editor

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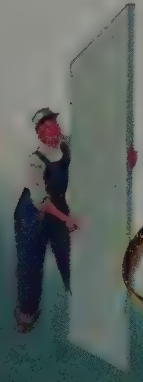

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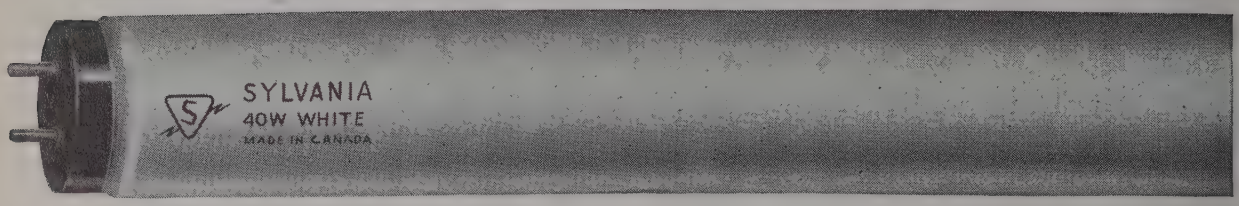

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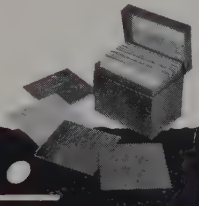

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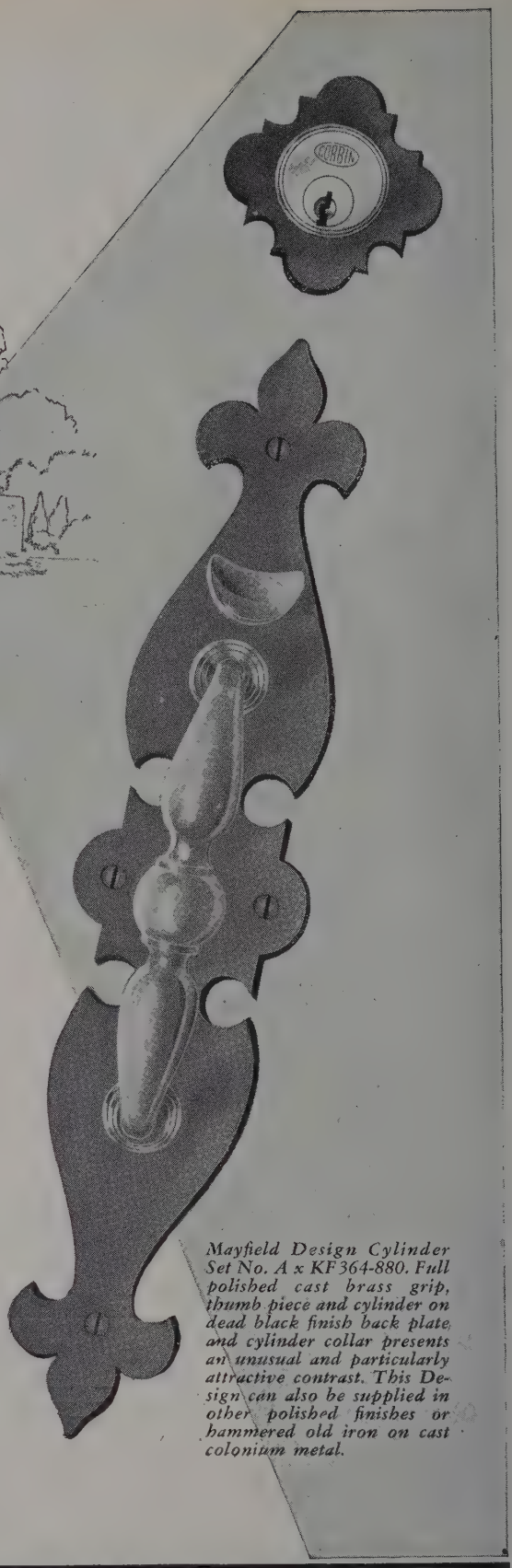

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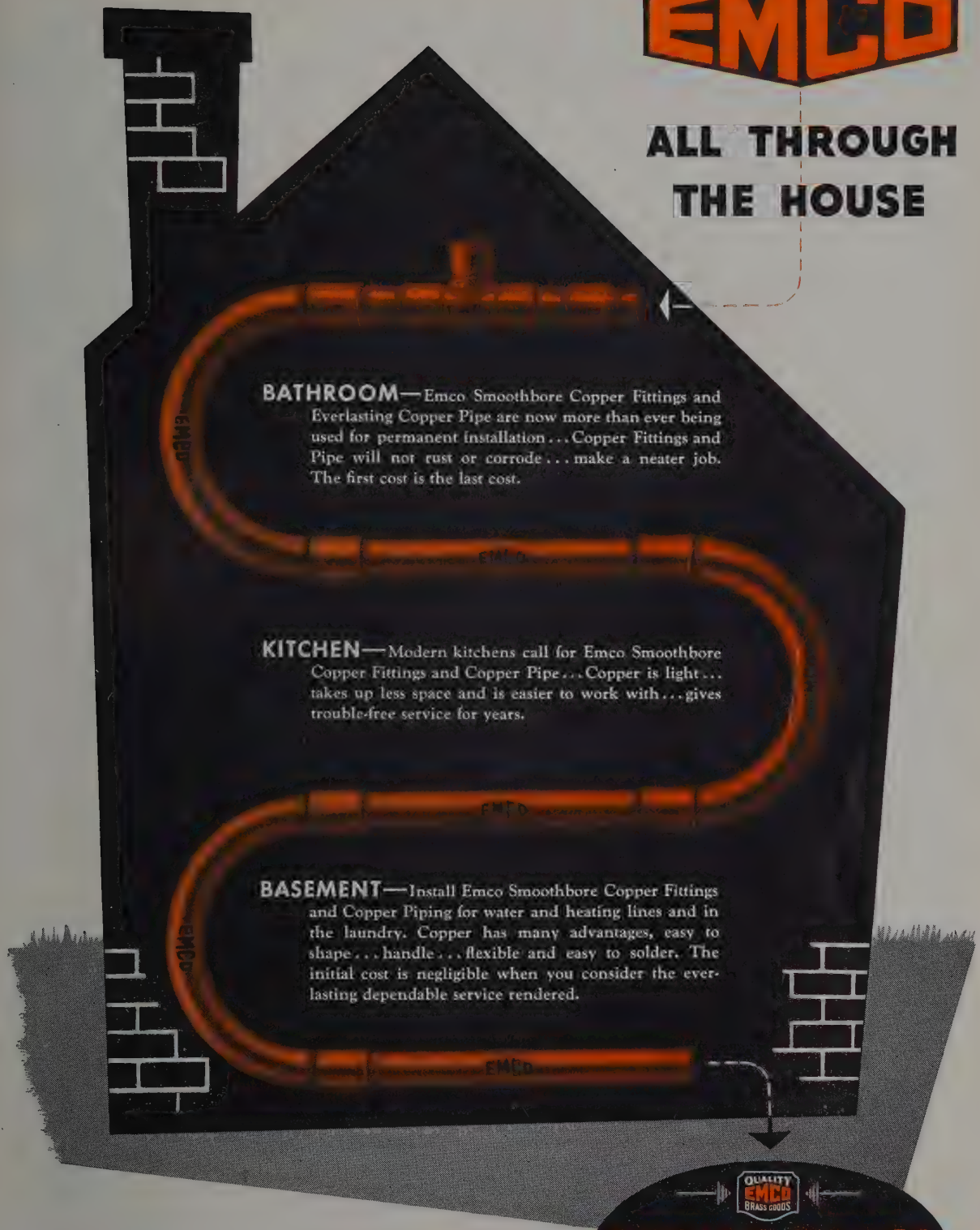

BATHROOM—Emco Smoothbore Copper Fittings and Everlasting Copper Pipe are now more than ever being used for permanent installation... Copper Fittings and Pipe will not rust or corrode... make a neater job. The first cost is the last cost.

KITCHEN—Modern kitchens call for Emco Smoothbore Copper Fittings and Copper Pipe... Copper is light... takes up less space and is easier to work with... gives trouble-free service for years.

BASEMENT—Install Emco Smoothbore Copper Fittings and Copper Piping for water and heating lines and in the laundry. Copper has many advantages, easy to shape... handle... flexible and easy to solder. The initial cost is negligible when you consider the everlasting dependable service rendered.

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To meet the increasing demand for

FLAT RIM Sinks

...A Variety of Eight Types and Sizes in Porcelain-on-Steel available for your selection and installation

MODERN kitchen developments have resulted in an increasing demand for flat rim sinks that may be installed flush with a continuous tile, linoleum or composition counter top. To meet that demand you have in this Porcelain-on-Steel line a dependable source of supply which offers four types of single and double bowl sinks—each with or without ledge—each in two different sizes. From them you can make the appropriate selection to fit any modern kitchen plan featuring a built-in sink. In addition, there are flat rim sink-and-tray combinations, in 42″ size with or without ledge—adaptable to kitchen or utility room.

These sturdy sinks are made of 14-gauge metal, and are finished with stainproof, porcelain enamel that does not absorb dirt and grease, is easily cleaned, offers maximum resistance to stains and to chipping.

12-5009

For further details on sizes, trim, "Receptol" Strainer, etc., write for booklet ADM-9010: "Porcelain-on-Steel Plumbing Ware".

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DISTRIBUTED THROUGH PLUMBING AND HEATING WHOLESALERS FROM COAST TO COAST

Thermopane INSULATING WINDOW UNIT BY Pilkington's

Every architect and builder knows the first thing people do when they look at a house with a view to buying. They go to a window, and look out.

Thermopane makes the first impression. It can swing a sale. Yet for all it's well known advantages, the cost of Thermopane is a fractional part of the cost of constructing a home.

People know that Thermopane will not mist or frost in winter . . . that it will help keep the home cooler in summer . . . that it means lower air-conditioning costs. They associate Thermopane with a fine attention to detail in building. So the installation of a Thermopane window commanding a fine view can play an important part in the success of the men whose business it is to design and create modern houses.

*Thermopane
INSULATING WINDOW UNIT

*Reg.

4 IMPORTANT FEATURES OF THERMOPANE INSULATING WINDOW UNIT

1 **Insulating air space.** The air inside the Thermopane units is scientifically cleaned, dried and hermetically sealed.

2 **Bondermetic Seal.** This metal-to-glass seal permanently bonds two panes of glass into a single unit.

3 **Patented Bondermetic Seal** reduces possibility of frosting up and condensation to a minimum.

4 **Only Two Surfaces To Clean.** The inner glass surfaces are specially cleaned at the factory . . . always stay clean.

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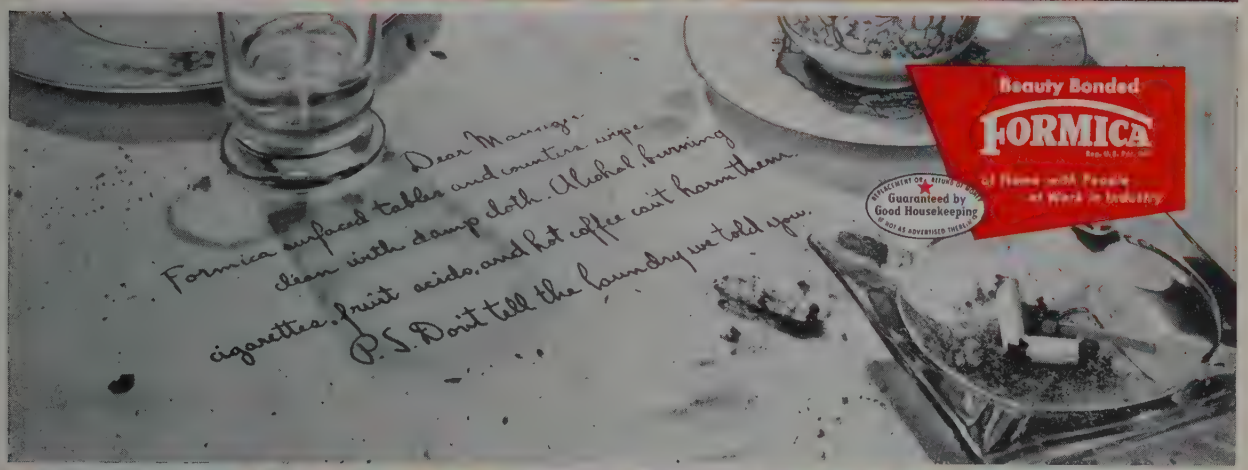
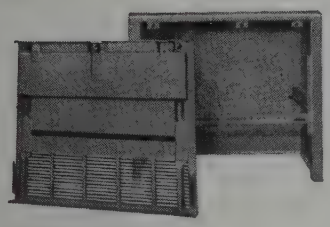


Sold in Canada by ARNOLD BANFIELD & COMPANY LIMITED
TORONTO OAKVILLE MONTREAL

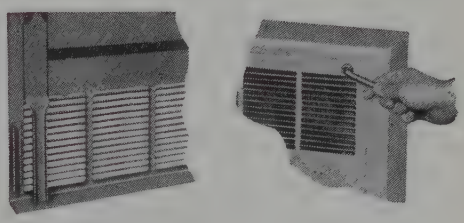
Specify Modine Institutional Convectors For Heavy-Duty Applications

BUILT TO "TAKE IT"



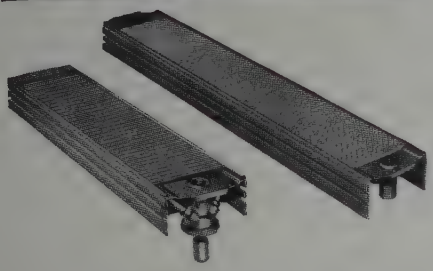
Modine Institutional Convector enclosures are built like a battleship. Formed from extra heavy gauge steel, they are sturdily reinforced for rugged service. Their Directflo grilles of 14-gauge steel are integral with the front (not welded to it). Yes . . . for the same reason architects and engineers use heavier-than-standard equipment and materials for public and institutional buildings, they specify Modine Institutional Convectors for these applications. They know it pays off in lower maintenance costs . . . yet adds relatively little to the total cost of the building.

DESIGNED FOR THE JOB



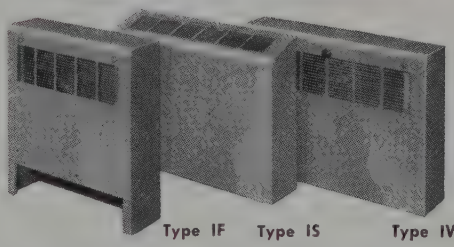
Modine Institutional Convector design is functional . . . takes into consideration those problems applying specifically to schools, hospitals and public buildings. For example, close louvre spacing in grilles makes it impossible to insert objects thicker than an ordinary lead pencil. Modine lock-type front and damper (available at slight extra cost) solves a problem for institutions where easy removal of the convector front or tampering with the damper is to be avoided.

TWO TYPES OF HEATING UNITS



Institutional convectors are available with standard heating unit for hot water or two-pipe steam . . . or with new Quiet-Seal heating unit specifically designed for one-pipe steam. From inlet to outlet, all-copper or copper-alloy headers, tubes and fins give you highest heating capacity. Tubes, brazed to headers, form a rugged pressure-resisting unit guaranteed for steam pressures up to 150# gauge. Fins, metallically bonded to tube walls, insure permanent, corrosion-free contact of primary to secondary heat transfer surface . . . your assurance of continuously excellent performance.

3 TYPES OF ENCLOSURES



Type IF Type IS Type IW

Choose from three enclosure types designed for heavy-duty service. *Type IF* with upper grille and a choice of lower opening or lower grille . . . for either recessed or free-standing installation. For installation *on the wall* there is the *Type IW* and *Type IS*. *Type IS* has a solid steel front with outlet grille in its sloping top. All enclosures have heavy 14-gauge steel fronts. Dampers are optional at a slight extra charge.

For complete information, see your nearest Canadian Representative. Or write direct. Modine Manufacturing Company, Racine, Wisconsin.

Design and Mechanical Patents Pending

Send for New Modine Convector Catalog No. 249 Today! Special 1-Pipe Steam Convector Bulletin Also Available.

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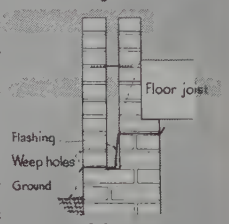
FOR FIRE SAFETY— BUILDERS SAY

"Brick rates first"

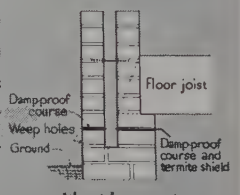
TIPS ON GOOD MASONRY PRACTICE

Showing Methods of Dampproofing Cavity Walls

Cavity walls in homes with basements must have a flashing course extend through the wall and be higher on the inside. This diverts any seepage in the wall through the weep holes in the outer wythe and away from the basement. In basementless homes, this precaution is not necessary and the dampproofing course need not extend across the cavity. In either case, these courses serve as termite shields.



With basement



without basement

Plain to see it's no secret!

More than half of you builders chose brick, *over all materials*, as the most fireproof!

We discovered this overwhelming preference of builders for brick in a recent nationwide survey. Frankly, your choice of brick as "first for fire safety" is not surprising. The extra protection, durability and value that brick gives a home have long been well recognized.

But look at the rest of the survey results!

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Send today for MODERN BRICK HOMES! 56 pages chock-full of labor-saving, cost reducing information for home builders. You'll get economy engineered plans for 20 houses. Also discussions on location of site, choice of plans, financing, interior arrangements, exterior beautification. Only 50¢. Send with your name and address to the address below.

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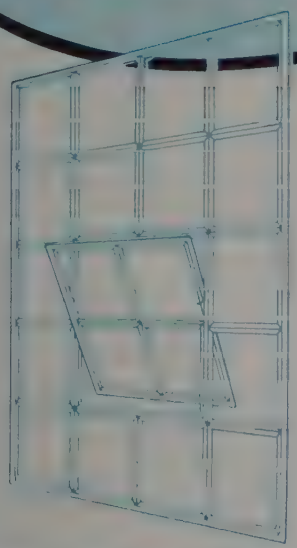
Architects: Mathers and Haldenby

WESTEEL METAL WINDOWS

. . . STEEL OR ALUMINUM



The handsome, uniform appearance of Westeel Metal Windows help "dress-up" any building. They provide maximum light and ventilation, are neat, easily installed . . . speed up construction. They are strong, durable, shrink-proof, warp-proof, fire-proof . . . accurately assembled. Modular or standard units . . . Fixed, Vented, Projected and Continuous Sash. For information . . . address our nearest office.

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800,000 SAND LIME BRICK

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ALSO EXTENSIVELY USED FOR INDUSTRIAL AND RESIDENTIAL CONSTRUCTION

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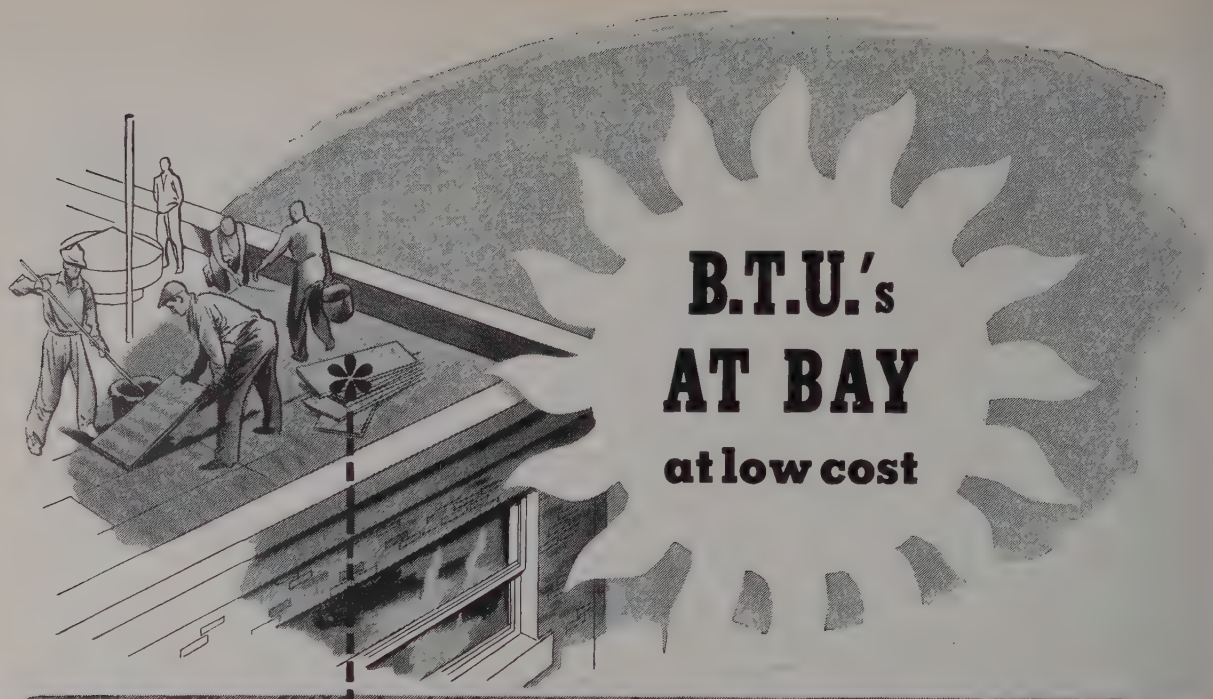
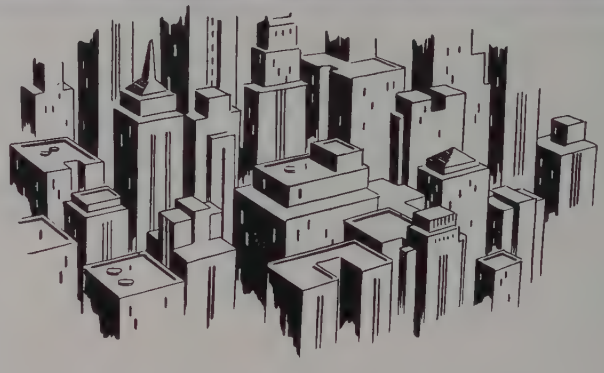


B.T.U.'s AT BAY at low cost

PRODUCT DATA

- Low heat conductance
- Light weight
- Durable under severe conditions
- Dimensionally stable
- Approved under "bonded" roofs
- Installed by standard method
- Maximum service life for roof and deck



CONSIDER the advantages of Fiberglas Roof Insulation from any angle. Durability . . . Fiberglas Roof Insulation will not warp, swell, shrink or decay. When it is on, it is on to stay. Structural strength . . . will withstand normal handling and traffic conditions during application and subsequent maintenance. Ease of application . . . standard roofing methods are recommended and no special technique is called for. All of which makes Fiberglas Roof Insulation your logical selection for built-up roofs. For further information write for "Fiberglas Design Data Sheet RW6.A.2."

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The skyline of a new world is rising with the Secretariat Building of the United Nations. Within it will be the unusually complex working day of the Secretary-General's administrative staff of 3,200 people. Elevator-wise it will look like this: An UP peak at 9:30 a. m. BALANCED mid-morning traffic. HEAVIER-DOWN for an 11 o'clock meeting; and again for 12:30 lunch. HEAVIER-UP at the 1 o'clock meeting close. Balanced UP and DOWN luncheon traffic at 1:30. HEAVIER-UP from lunch at 2:30. HEAVIER-DOWN to start the 3:30 meeting. BALANCED mid-afternoon travel. HEAVIER-UP at the 6 o'clock meeting close. A DOWN-PEAK at 6:25 p.m. as the day ends. Then 2-car night service.

Unusual? Yes. But easily within the flexibility of the 6 basic electronically supervised traffic programs of Otis AUTOTRONIC Traffic-Timed ELEVATORING. 18 passenger elevators, in 3 banks of 6 cars, will serve 39 floors and 3 basements. Further flexibility will be provided by coordinating elevator service with 8 Escalators running from the 1st basement to the 4th floor.

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"HEAL" Radi-Vector Baseboard Radiation.....

RADI-VECTOR Baseboard Radiation is a heating installation that homeowners will appreciate because it supplies *balanced heat distribution* throughout the *entire* home and provides the two most used types of heat — Radiant Heat for floor-level comfort and Convection Heat for even distribution throughout the "comfort zone".

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Heat with "HEAL" Heat
Made in Canada by

HEAL HEAT CONVECTION HEATING

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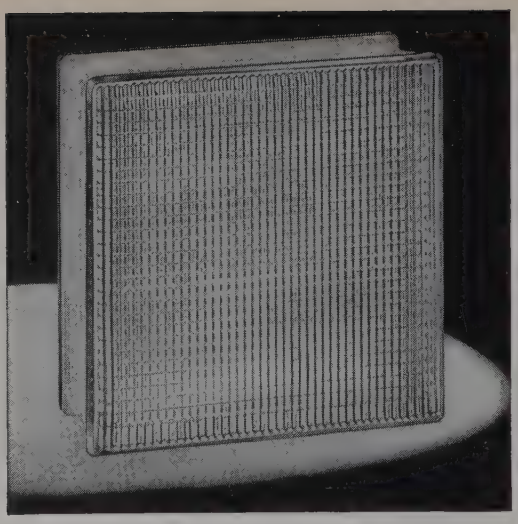
KLIXON TUBE



"Light Direction with Azimuth Correction"

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IN LIGHT CONTROL

with Insulux Glass Block Number 363

Since 1941, Owens-Illinois has maintained a laboratory at the University of Michigan for the purpose of studying daylight transmission through glass block. Out of this laboratory has come a completely new type of light-directing glass block—Insulux Number 363. This new block is not only daylight-directing, but is also "azimuth-correcting" . . . For light control it provides: more uniform transmission of daylight, increased diffusion, and lower brightness. These advantages, we believe, are of particular importance to architects and others interested in illuminating school classrooms, as well as other areas where daylight is used for critical seeing . . . Mail the coupon below for full information.

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American Structural Products Company
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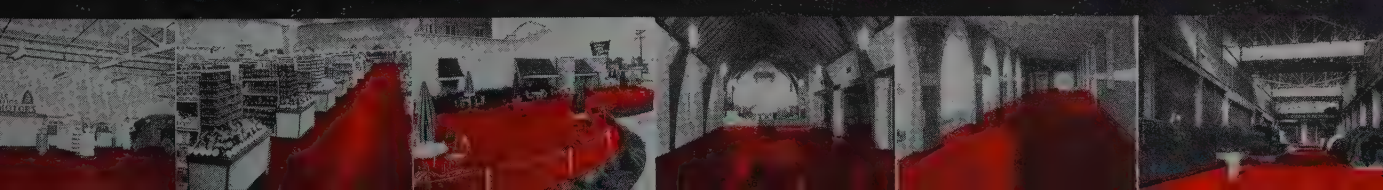


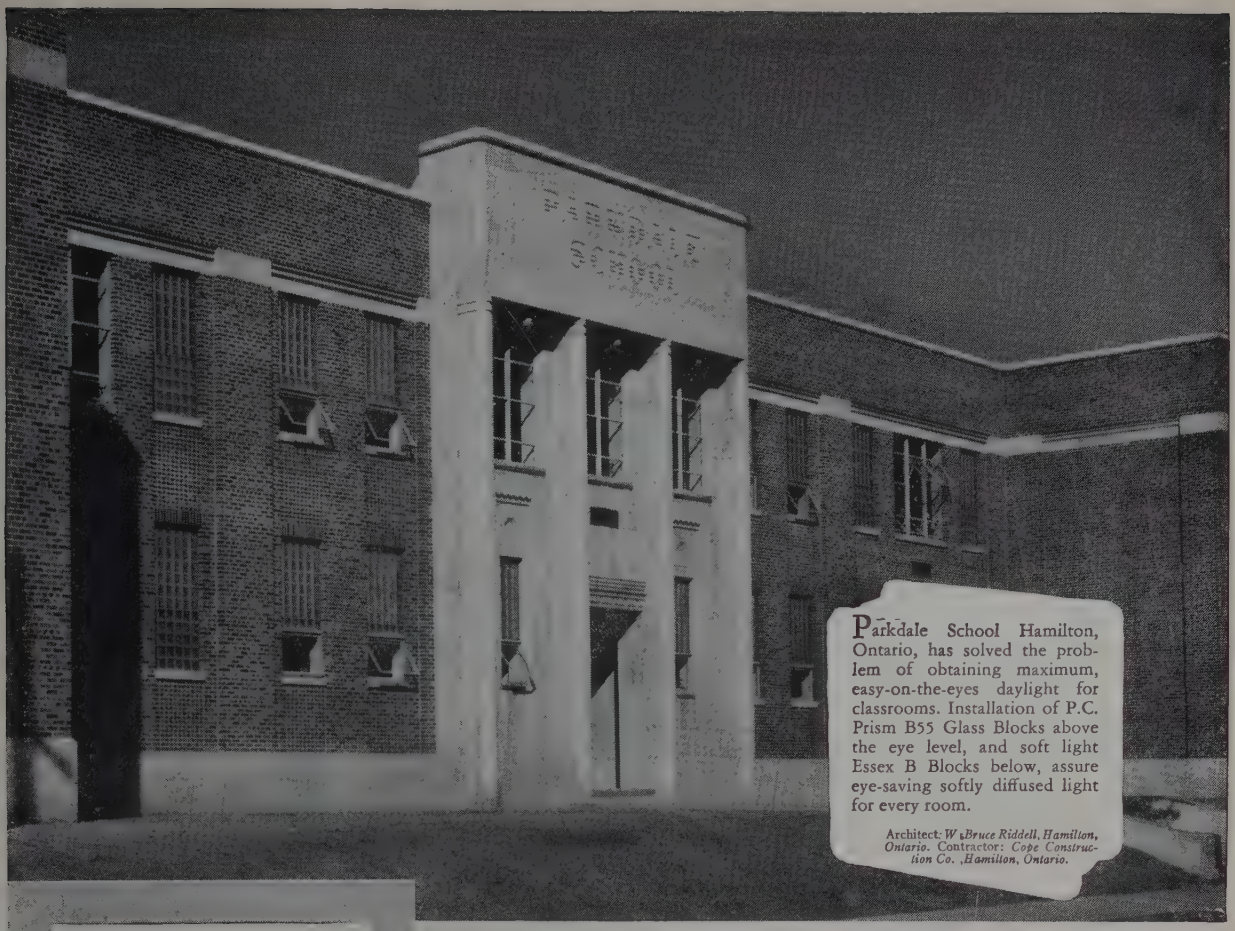
Dominion Battleship Linoleum floor in the new C-I-L Exhibit Centre, Confederation Building, Montreal.

Your Floor, too, can be a Silent Salesman

Like the one above, your floor can announce your firm's name . . . tactfully direct traffic . . . subtly enhance the colour values of exhibits . . . Besides being resilient, Dominion Battleship Linoleum hushes the sound of footsteps and makes sales talk easily audible . . . Inexpensive to keep clean . . . long lasting . . . with low maintenance costs, it is a floor suitable for showroom, store, office, institution and home.

DOMINION *Battleship* **LINOLEUM**

A product of DOMINION OILCLOTH & LINOLEUM COMPANY LIMITED • Montreal

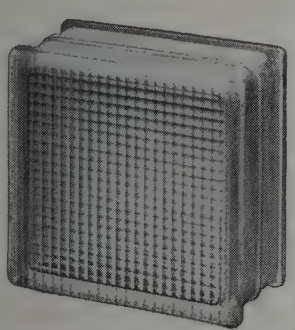


Parkdale School Hamilton, Ontario, has solved the problem of obtaining maximum, easy-on-the-eyes daylight for classrooms. Installation of P.C. Prism B55 Glass Blocks above the eye level, and soft light Essex B Blocks below, assure eye-saving softly diffused light for every room.

Architect: *W. Bruce Riddell, Hamilton, Ontario.* Contractor: *Cope Construction Co., Hamilton, Ontario.*

PC GLASS BLOCKS

are available in 8 decorative styles, a variety of functional patterns and sizes, with corner blocks in two dimensions. There is a design for every requirement, and they can be installed by any mason using ordinary tools and materials.



Bending and Spreading SUNLIGHT

P.C. PRISM B55 Glass Blocks send diffused daylight to the ceiling. From there it bounces downward through the working area even to the furthest corner. This means less eyestrain, better visibility, *more efficient work.* Increased safety too, when these P.C. Glass Blocks are used for stairways, and inside passageways.

And P.C. Glass Blocks insulate permanently! No more rotting sash due to "sweating" windows in damp or cold weather.

Contact the Hobbs Glass Branch in your city or province or ask your building supply dealer about Glass Blocks. Write direct to Hobbs Glass Limited, Box 695, London, for illustrated literature.

PC GLASS BLOCKS

HOBBS GLASS LIMITED

HOBBS

Branches from Newfoundland to British Columbia

You Specify-

1. **Superior Insulating Value**
2. **Greater Structural Strength and Dimensional Stability**
3. **A Vapour Barrier**
4. **Sound Absorption**

when you Specify-

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— the ORIGINAL laminated all-round insulating and building board — the board with a built-in vapour barrier.

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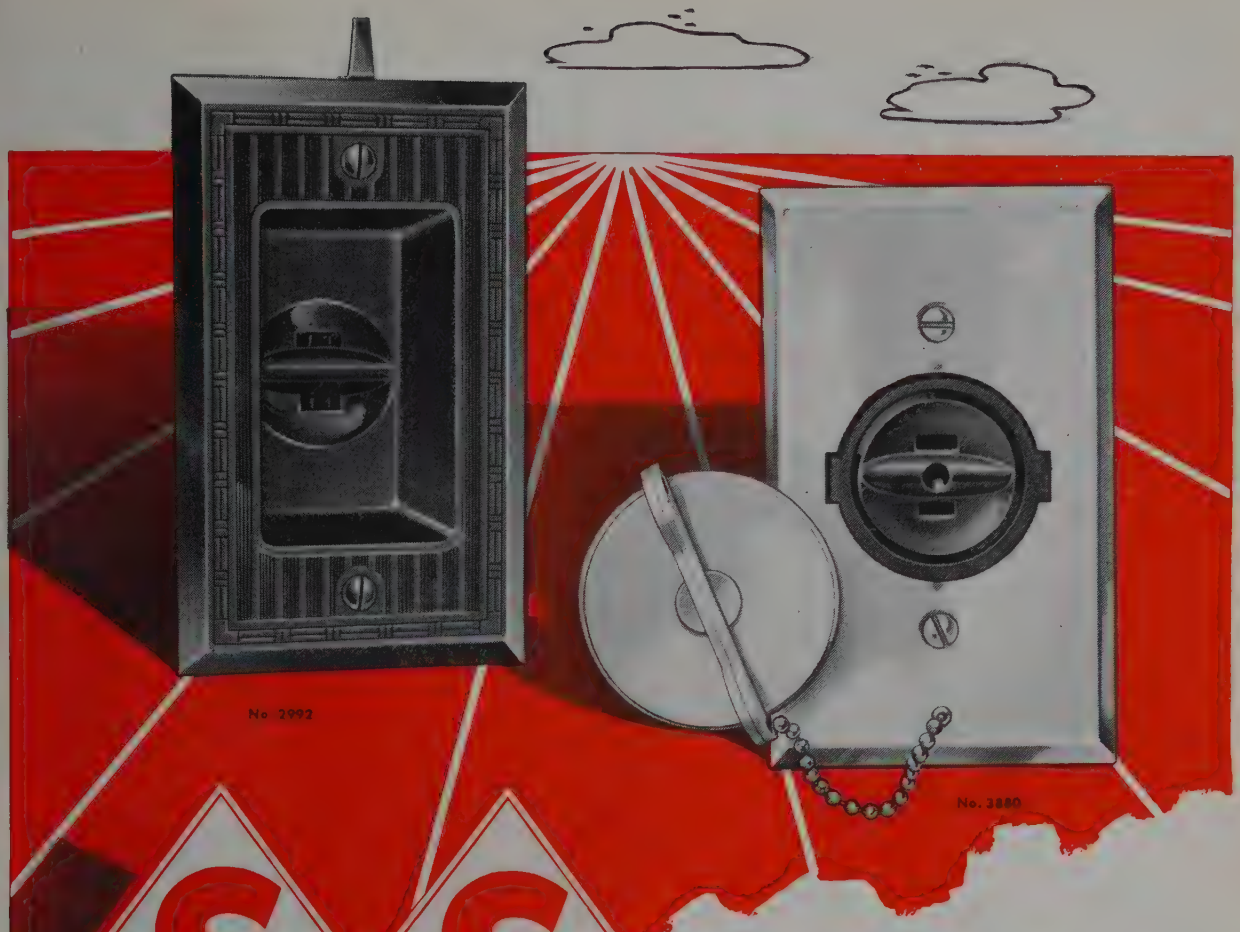

SERVICE NOW ENLARGED WITH ADDITIONS FROM THE BRYANT LINE

This "clock hanger" outlet and "weather-proof" outlet signify an important extension of Smith & Stone service. They are just two of a wide range of items developed by Bryant, a famous name in wiring devices in the U.S.A. By special arrangement they are now being made and sold in Canada by Smith & Stone.

Advanced design, finest materials and workmanship, and an ever-broadening range of devices to serve the electrical trade—these are advantages you get when you look for the Smith & Stone trade mark.

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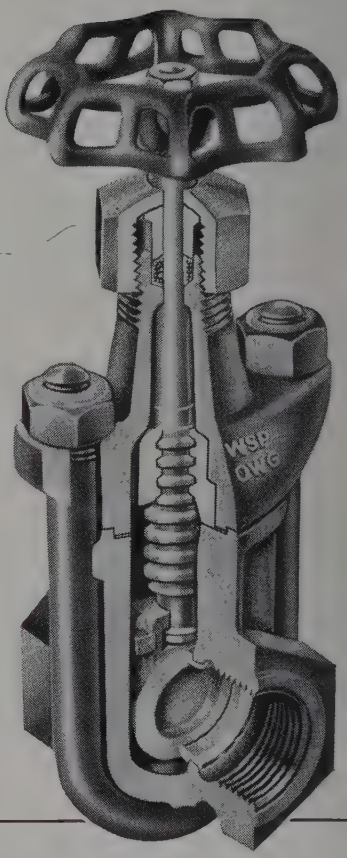
Sales Offices: Montreal, Toronto, Winnipeg, Calgary, Vancouver

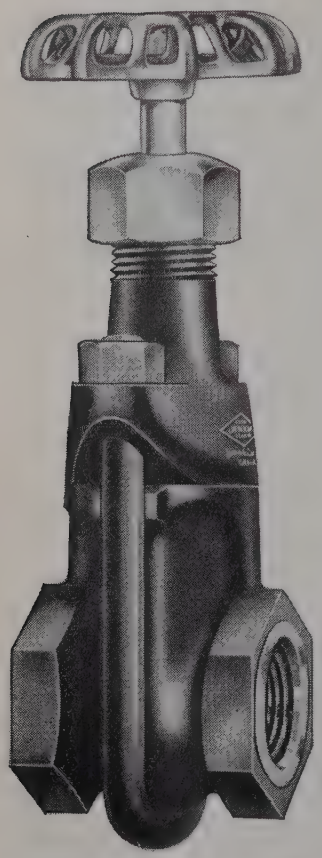
JENKINS CLIP GATE VALVES

for longer service life, lower maintenance cost



Jenkins offers two types of Clip Gate Valves, bronze mounted and all iron, designed for specific services and built to the usual Jenkins high standard of quality from high tensile strength grey iron, in accordance with A.S.T.M. specifications.

These valves incorporate exceptional features. One of these is the renewable "floating" Spindle Nut. Because of it the entire bonnet need not be replaced if operating threads become worn. Instead, a new Spindle Nut can be slipped into the bonnet, restoring original thread engagement in a few seconds.



Cast in the bonnet, around the bushing, are efficient channels which permit complete drainage and prevent freezing when the line is drained while the valve is left wide open.

Rugged construction of Jenkins Clip Gate Valves is achieved by the proportionate distribution of metal to meet service conditions and to resist springing or distortion through pipe strains.

PRESSURE — POUNDS PER SQUARE INCH

Size (Inches)	½-2" Screwed	2½-3" Screwed	1½-3" Flanged
Steam	150	125	125
Non-shock Cold Oil, Water or Gas	225	175	175
Total temperature	450°F.	450°F.	450°F.

Sold through leading industrial distributors

JENKINS BROS. LIMITED
617 St. Remi Street,
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For industrial, engineering, marine and power plant service
. . . in Bronze, Iron, Steel and Corrosion-Resisting Alloys.

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IN COPPER, STAINLESS STEEL, ALUMINUM, NICKEL, MONEL,
MILD STEEL (coated, clad or plain) & OTHER METALS AND ALLOYS.

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"FOR HOME BUILDING HEAVY CONSTRUCTION PUBLIC WORKS

I specify seasoned PACIFIC COAST HEMLOCK"

A wood of truly remarkable versatility and usefulness, seasoned Pacific Coast Hemlock commands a wide variety of uses. From the manufacture of airplanes in World War II to the finish of church interiors, Pacific Coast Hemlock has given excellent service for many years in practically all types of construction. Today seasoned Pacific Coast Hemlock is specified by architects and engineers and used by carpenters on an ever increasing scale.

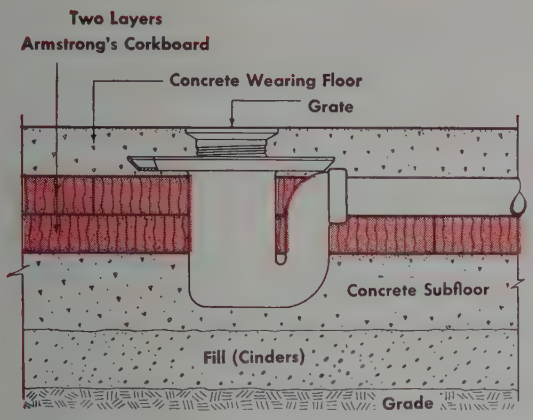
PACIFIC COAST HEMLOCK grows only in the Pacific Northwest and is a distinct species — not to be confused with its Eastern namesake. The wood is a pale, greyish yellow with a faint reddish tone in places. The grain, though not pronounced, is generally fine-textured and uniform. Pacific Coast Hemlock, when properly seasoned, will not warp or twist, is not brashy and will not splinter.

Seasoned Pacific Coast Hemlock has these advantages:

- **When seasoned, light in weight and easy to handle.**
- **Unusually stiff and strong in proportion to weight.**
- **Exceptionally high in shock resistance.**
- **Has straight, even grain with small, tight knots.**
- **Shows little tendency to twist, warp or check when properly seasoned.**
- **Edge grain wears down evenly without splintering. Fibres tend to mat with wear. Ideal for floors and decking.**
- **Hardness increases with age.**
- **Easily nailed and holds nails well. High in ability to stay in place.**
- **Free from oils, pitch, resin and water solubles. Odorless when dry. Takes stain evenly. Presents excellent surface for paint or enamel.**
- **Possesses exceptional gluing properties.**
- **Reacts favorably to creosote treatment.**
- **Is an excellent insulator.**

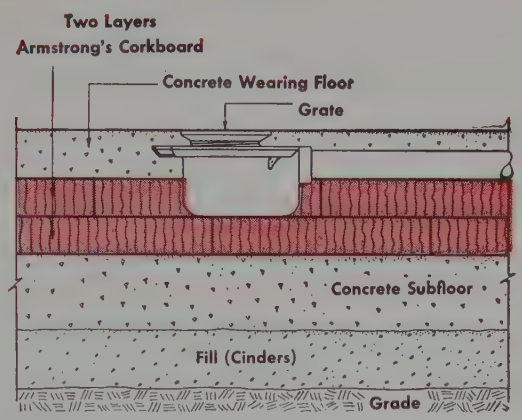
B.C. COAST WOODS

WRONG



The diagram above shows a common type of floor drain fixture installed. Note that the upper layer of insulation must be cut because of the position of the drain pipe. The insulating envelope must also be pierced to accommodate the tall dimensions of this drain.

RIGHT



This drawing shows how a properly designed cold storage room drain can be installed. The lead-off pipe clears the upper layer of insulation. Because of its squat dimensions, this drain is readily installed without making a complete break in the flooring insulation.

How to install floor drains in refrigerated rooms

When you're planning a low-temperature room, remember that the use of a standard type floor drain results in higher installation costs and weakens the insulation envelope.

In standard drains the outlet leads away from the trap below the wearing floor, making it necessary to tunnel it through the insulation. Labor costs go up, and insulation thickness is reduced at this point. The place where the traps of these drains completely pierce the insulation is a weak spot where trouble may develop.

By choosing drains specially designed for cold rooms, these weaknesses can be corrected. The distance between outlet and base of these drains is shorter than in standard fixtures. Lead-off piping runs in the wearing floor. There's no need to tunnel through the floor insulation and reduce its efficiency. The shallow trap also allows for insulation thickness below its base.

Cold room drains and piping are installed before the last layer of floor insulation is laid. The last layer then is fitted under the drain pipe and around the trap, where it's sealed with hot asphalt. Then the concrete wearing floor is poured flush with the drain grating.

Correct design of a low-temperature room calls for a specialized knowledge of many details that aren't found in ordinary building plans. Armstrong engineers are familiar with these details. When you have a question involving the design of a low-temperature room, take advantage of their specialized knowledge. The complete contract service these men represent also offers you quality insulating materials and skilled mechanics to apply them. Call the Armstrong office nearest you or write to Armstrong Cork Canada Limited, Building Materials Division, 6911 Decarie Boulevard, Montreal, P.Q.

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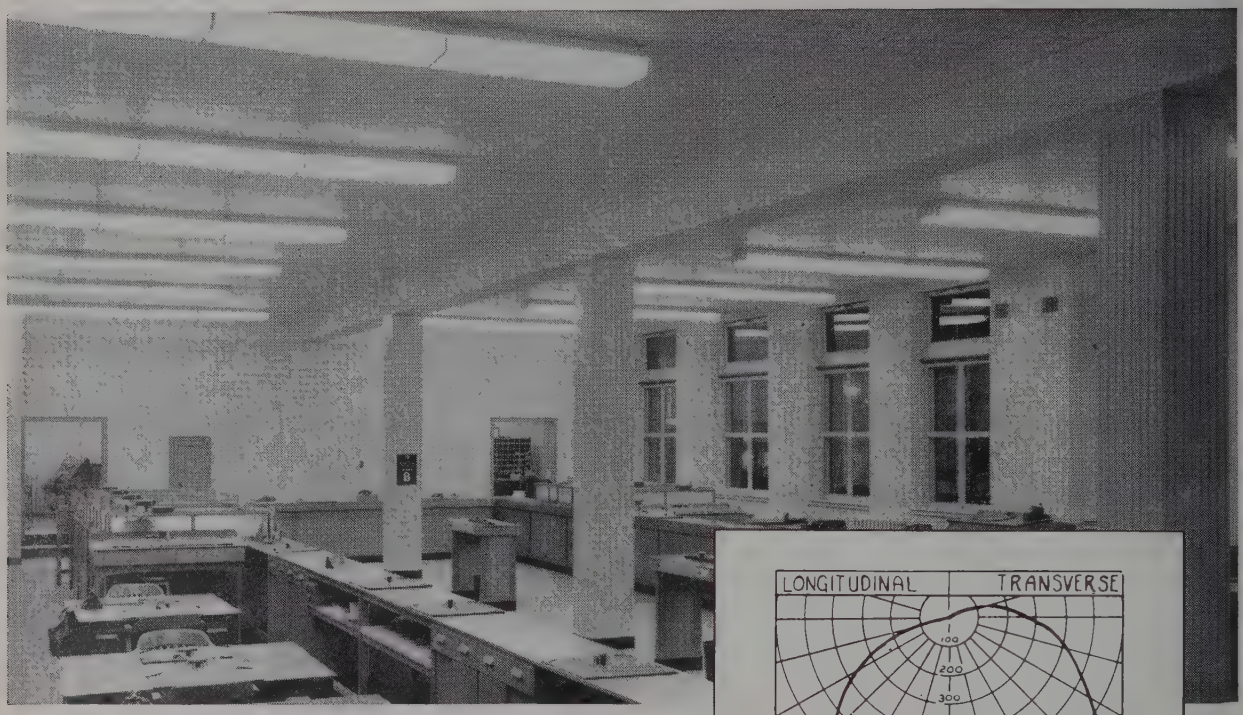
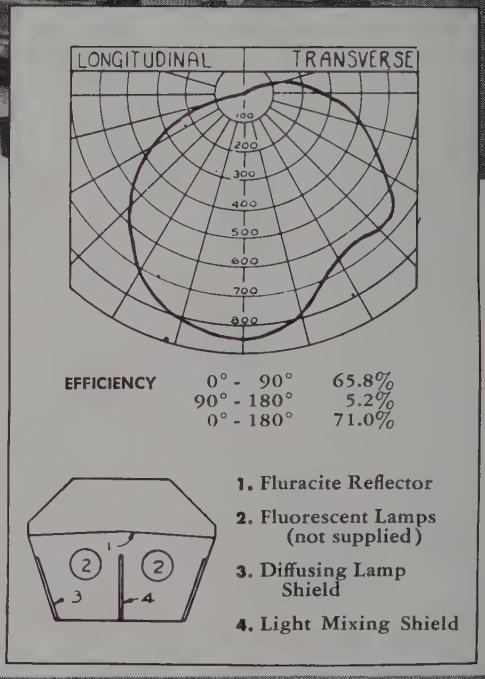


Courtesy Royal Bank, Branch Office, Calgary, Alta.



EFFICIENCY		
	0° - 90°	65.8%
	90° - 180°	5.2%
	0° - 180°	71.0%

1. Fluracite Reflector
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And you'll appreciate the Curtis construction principle that virtually banishes eye-fatiguing flicker—whether you use 25-or 60-cycle power. The lamps in Tranquilux luminaires operate out of step, with one at maximum brilliance when another is at its minimum. The glass mixing panels neutralize the light from the lamps giving smooth, even illumination.

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Frigidaire cut refrigeration costs in half for The Plaza Hotel, Ottawa, Ontario.

"The summer of 1949 was the hottest and hardest on refrigeration equipment that we can remember," writes Mr. Louis Karrys, Manager. "Fortunately for us we contracted last winter for Frigidaire equipment to cool our three Walk-in Coolers, a Reach-in Beverage Cooler, a completely new Drinking Water System and our Beer Dispenser.

"Even with the extreme heat, we have had less loss in our kitchen than we have ever experienced over the years we have been in business. We estimate the operating cost of our Frigidaire system is approximately half as compared to former equipment used." The Plaza Hotel's Frigidaire system was sold and installed by Federal Appliances Ltd., Ottawa, Ontario.

Mr. Louis Karrys, Mgr.

Top: View of The Plaza Hotel restaurant

Centre: Looking toward the rear of the Beverage Room

Right: A section of the Cocktail Lounge

Experience of others proves

Frigidaire Will Give You Better Refrigeration at Less Cost

● Surely there is no safer buying guide than the experience of others. Frigidaire refrigeration will do for you what it is doing for thousands like the Plaza Hotel. Frigidaire compressors, cooling units and controls are all designed and engineered by Frigidaire to work together smoothly, enduringly, as a matched, balanced unit. Every Frigidaire refrigeration product is built to give you the *right* refrigeration results at the lowest cost consistent with absolute dependability.

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"I'm for any materials that cut cost of tenant alterations"

Recommend Robertson Q-Floor to your clients as an investment that will save enormous sums of money in maintenance and alterations over the years. Point out how its electrical availability protects a building against obsolescence.

With Q-Floor an electrical outlet can be established on every six-inch area literally in a matter of minutes, without digging a trench. Just drill a hole, no muss or fuss.

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Keep fully informed on the advantages of modern Q-Floor. Consult us for data and specifications.

RQ-F5-6

here's the book

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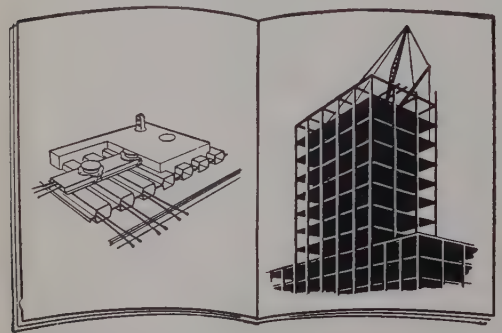

Q-Floor comes pre-cut ready to weld to the steel skeleton. Two men can lay 32 sq. ft. in 30 seconds. Construction is dry, non-combustible, clean, free from forms, falsework and fire hazard, Q-Floors so speed construction that building time is often shortened by 20 to 30 per cent. As for steel delivery dates — you always have to allow for demolition and by that time, the steel is ready.

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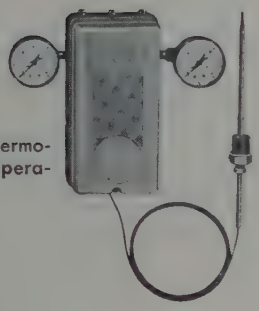
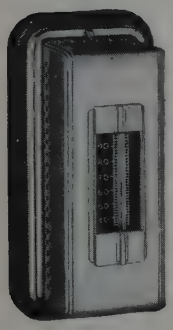
WHY JOHNSON TEMPERATURE CONTROL IS CHOSEN *for all types of heating systems*

High School, Drummondville, Quebec. A. Leslie Perry, MRAIC, architect; Wiggs, Walford, Frost & Lindsay, mechanical engineers; Industrial Plumbing & Heating, Reg'd., heating contractors, all of Montreal.



Johnson T-900 Master Thermostat measures outdoor temperature.



Johnson T-400 Room Thermostat provides final temperature correction.

During the past half-century . . . as the many advantages of automatically controlled temperature became more clearly understood, Johnson engineers were the logical source of information on correct temperature control for new applications. Why? Because Johnson designs and then manufactures, as well as installs, the complete automatic control system to fit each specific need. Building after building, thousands of them, have been studied by Johnson engineers and equipped with automatic control for 24-hour temperature comfort and the ultimate in fuel saving.

Small wonder, then, with such an extensive background of experience, that Johnson has had the answer to the question of how to control radiant heating coils since the earliest days of the development of "panel heating."

That is why, in the first school building in the Province of Quebec to be equipped with radiant heating, Johnson engineers were employed to build in the temperature control system. In the Drummondville High School, Johnson weather-compensated anticipatory control measures the changes in outdoor temperature and compensates for them. Consequently, the temperature of the coils which heat the radiant panels follows closely the demand for heat, and the irritations caused by the "thermal lag" of the panels, experienced with ordinary control hook-ups, are avoided entirely.

As a final correction of the temperature in each individual room, there is a Johnson room thermostat on watch in each of the 20 rooms at the Drummondville High School. The ventilating systems which serve the gymnasium are Johnson-controlled also.

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Facts by Pilkington about Glass
FOR ARCHITECTURAL STUDENTS

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Architect: Edgar Courchesne

6 Thermopane Units 72 x 84 were installed in Kalemine mouldings. Alumilite metal at sill sides and head jambs. Insulux Glass Blocks No. 407 over entrance doors.

This photograph, taken when the temperature was 20° below zero, shows the performance of Thermopane Insulating Window Units under extreme weather conditions. The Thermopane in the storefront is quite clear and free from condensation whilst the sweating in the double hung windows at the second story is apparent.

Thermopane, made in Canada by Pilkingtons, is a windowpane with built-in insulation. It is a unit of two or more panes of glass which are separated by ¼″ or ½″ of dehydrated air space and hermetically sealed around the edges at the factory with a metal-to-glass bond known as the Bondermatic Seal. It is made in many standard sizes and is suitable for all window openings. Its condensation reducing qualities make Thermopane of particular value for use in glazing air conditioned food display cases. When Thermopane is used in glazing the modern picture window it makes it possible to sit right next to the window with no sense of cold.

For further technical details on Thermopane please refer to pages 22 to 25 of this series or write to Head Office, Pilkington Glass Limited, 165 Bloor St. E., Toronto.

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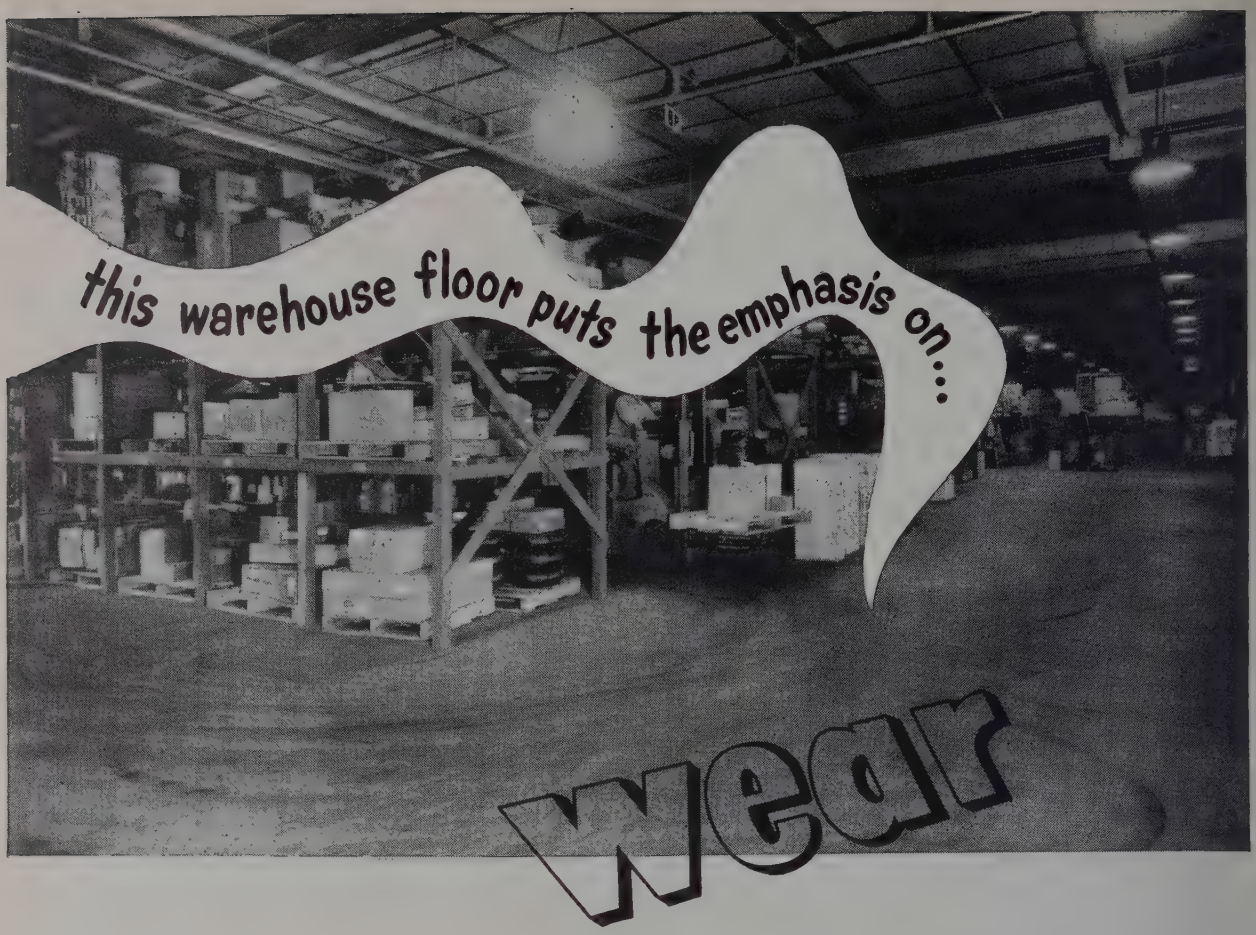

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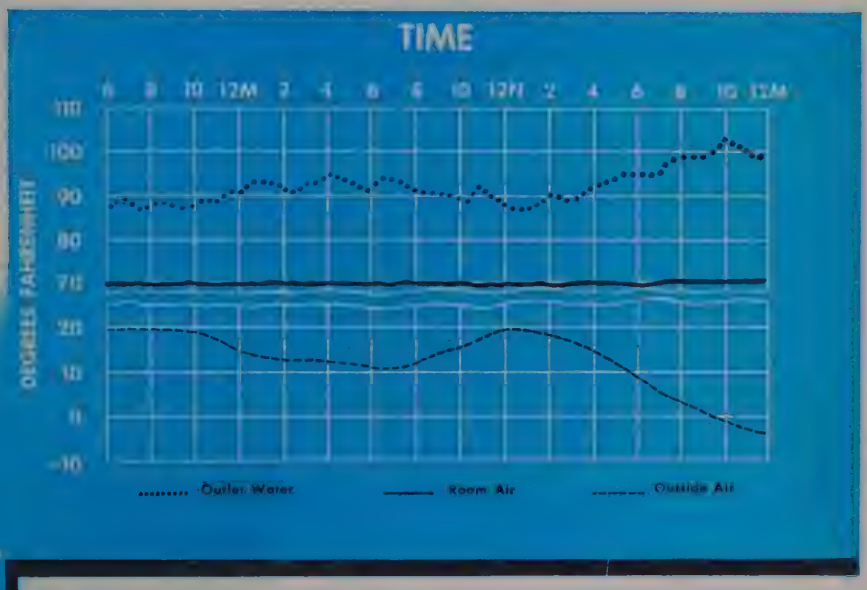

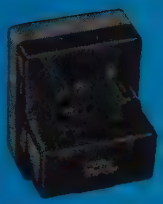

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Electronic Moduflow is your assurance of accurate control. It means complete automatic comfort from every properly designed and installed radiant panel. Honeywell has prepared two booklets to answer your questions about Electronic Moduflow. These are entitled "Electronic Moduflow" and "Electronic Moduflow for Radiant Panel Heating." Arrange today to get your copies.

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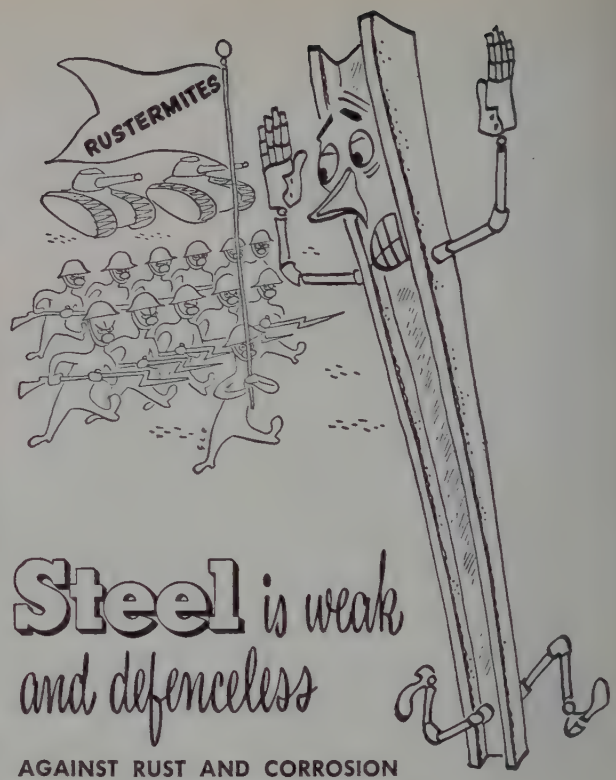

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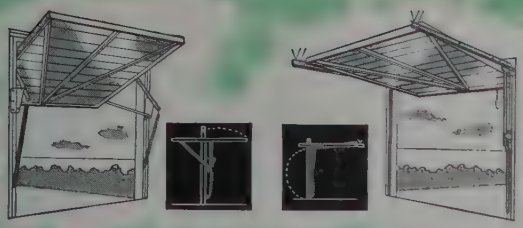

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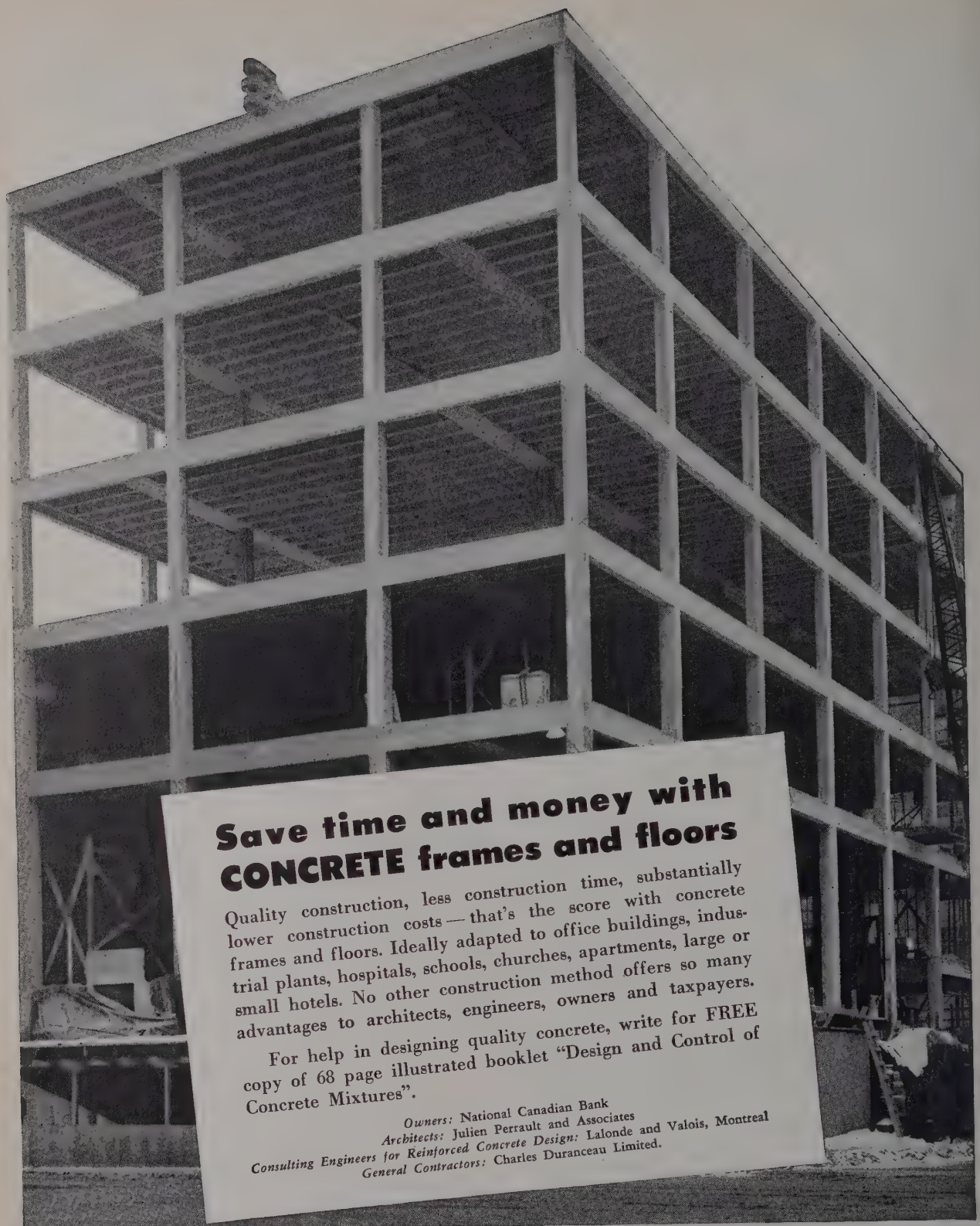

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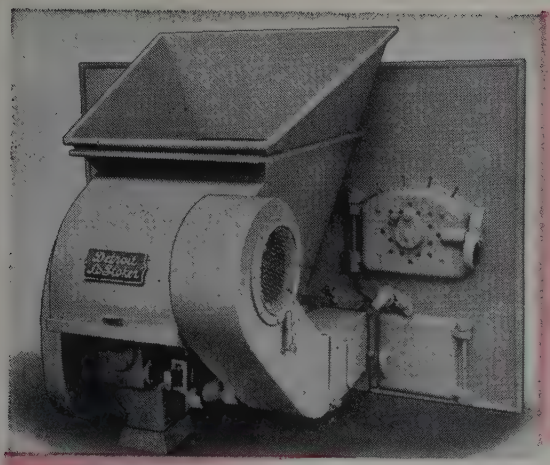
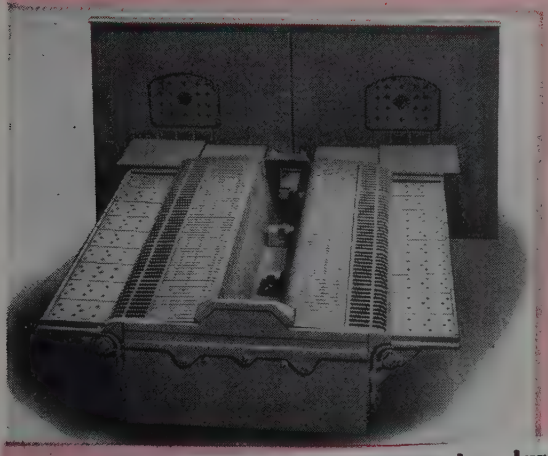


BABCOCK-DETROIT LOSTOKER (BRICK-SET TYPE)



BABCOCK-DETROIT LOSTOKER has large active grate area to fit the furnace

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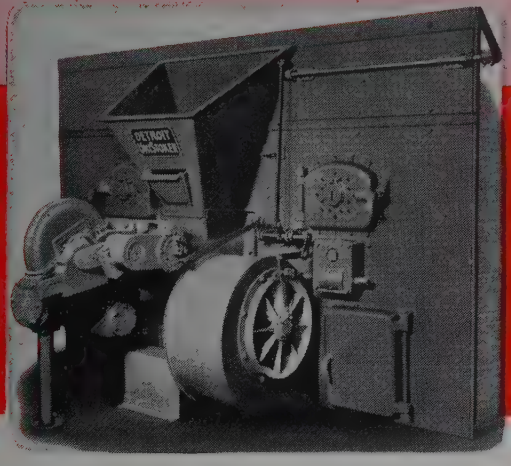

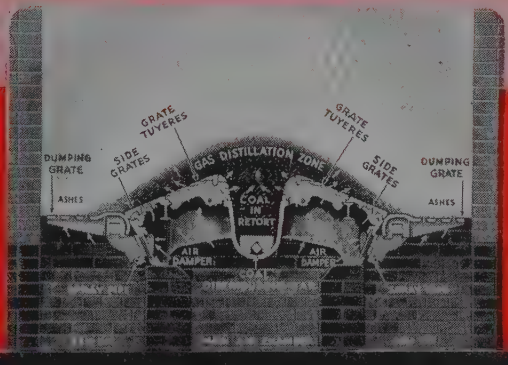

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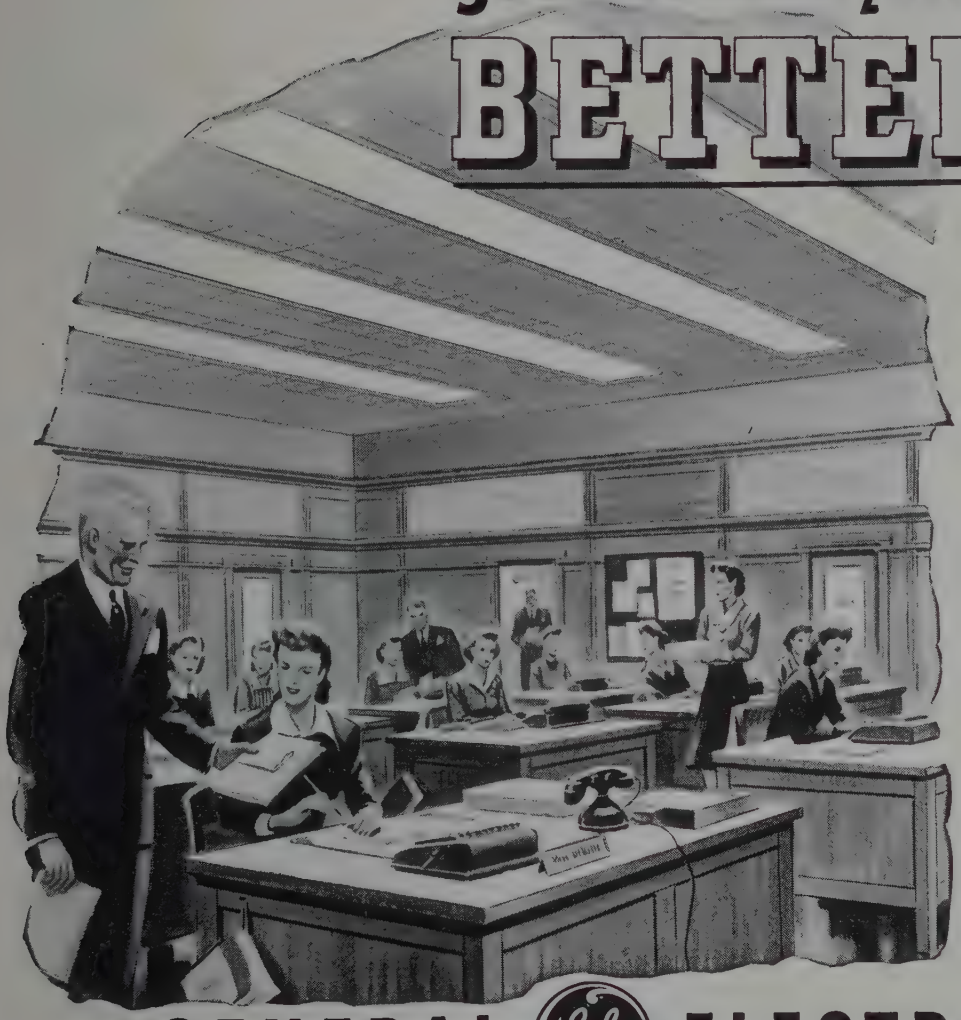

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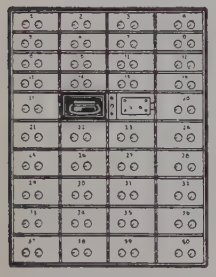
Reader's Digest — Saturday Night

DOMINION VAULT DOORS

FIRE-PROOF VAULT DOOR
WITH STEEL LINED VESTIBULE AND INNER DOORS

This particular Dominion unit is designed to be mounted in masonry opening after vault is completed. The inner doors feature the convenient up-and-down bolt action held in check by key lock. Dimensions are: clear door opening — 78" high by 30" wide — vestibule 16" deep or more to suit wall. Standard finish is sage brush gray, gold striped with varnished eggshell finish. We'll be pleased to send you complete specifications and installation data on this and other Dominion Vault door units.



Write today for information on the complete line of Dominion Safes and Vault Doors.

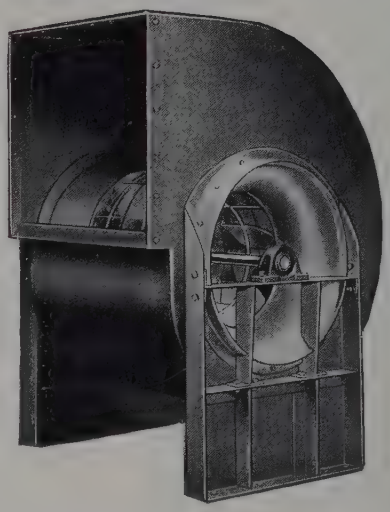
SAFETY DEPOSIT BOXES

Illustrated is the "B" unit containing 40 Deposit Boxes in sizes as follows: 12 boxes, 2" x 5", 4 boxes, 2⅜" x 5⅛" and 24 boxes 3" x 5". Also available are "A" units of 26 Deposit Boxes in sizes as follows: 16 boxes, 3" x 5", 8 boxes, 4" x 5" and 2 boxes 6¾" x 10⅜". "C" units contain 52 Deposit Boxes 2" x 5".

Units of any desired dimension other than the above can be furnished.

DOMINION
SAFE AND VAULT COMPANY
LIMITED
NIAGARA FALLS, CANADA

SHELDON
FANS for PUBLIC BUILDINGS



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Silavent fans are designed for quiet ventilation. The Silavent air impeller handles air gently, and delivers large volumes of air smoothly and silently through duct systems. These sturdy non-overloading fans can be supplied in a wide range of capacities and drive arrangements and with any direction of discharge. Fan housings are of rugged welded construction with rigid angle bracing. Silavent fans are non-overloading.

The new 44-page Silavent catalogue No. 333 gives complete information about this series of Sheldon fans. Write today for your copy.

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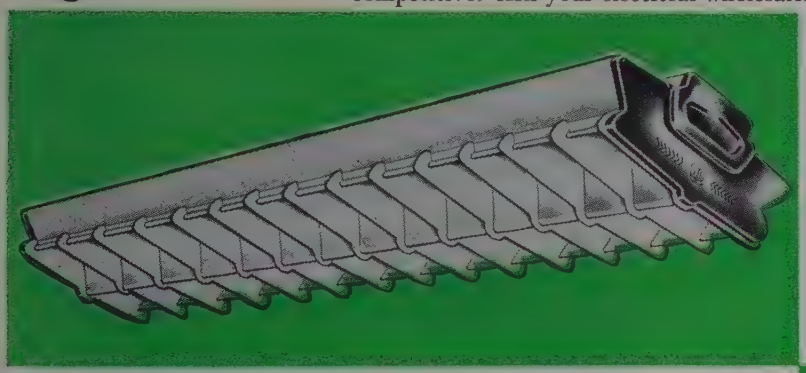
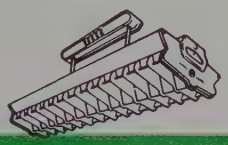
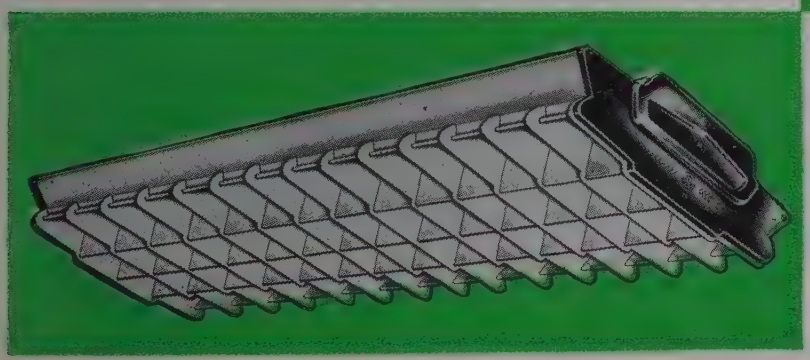
HERE'S THE ANSWER to the demand for a popularly-priced, commercial fluorescent lighting fixture . . . the Lenox 2 and the Lenox 4 designed by Day-Brite . . . manufactured in Canada by Amalgamated Electric. Both offer new lighting efficiency . . . new maintenance ease and economy. Side panels are steel. Interlocked louvers make enclosures one rigid unit. The chassis is standard for use with Lenox, or Viz-Aid enclosures, or for bare lamp fixtures. Both are suitable for either ceiling or suspension mounting and may be used in single units or continuous rows. Prices are competitive. Ask your electrical wholesaler for further details.



Lenox 2

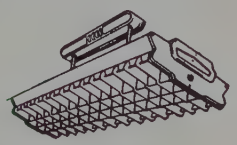
For 2, 40-watt lamps . . . exclusive louver design provides correct angle of shielding and low surface brightness.





Lenox 4

For 4, 40-watt lamps . . . louvers are double-wall "BOXCO" construction for added strength.



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Trafford Tile Saves Boiler House

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Throughout Rimouski there is proof abounding that dwellings constructed of asbestos-cement materials are standing, and are still occupied, on streets where all other houses have been burned to the ground. They stand out as beacons in the midst of desolation.

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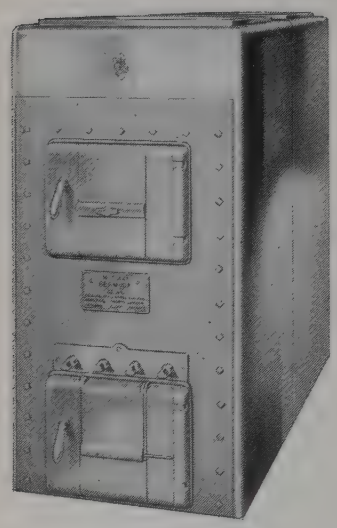
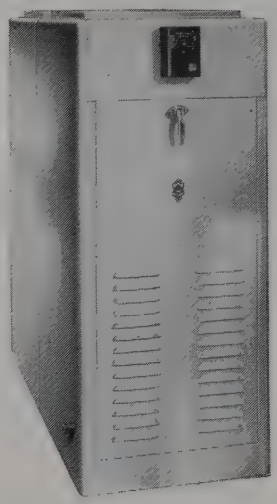
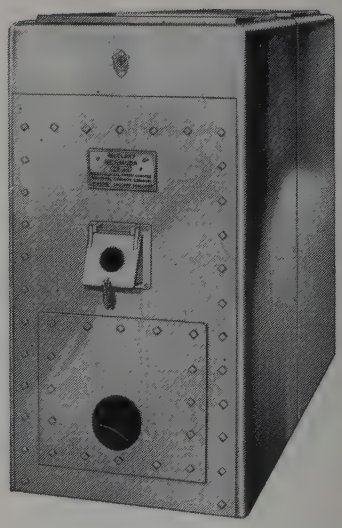


Bermuda Winter Air Conditioning Unit for coal firing.

No matter what your client's fuel preferences, be they oil, coal or gas there is a McClary warm air heating and winter air conditioning unit specifically designed for maximum efficiency and fuel economy. Completely enclosed in compact streamlined cabinets attractively finished in blue hammerloid lacquer they combine smart modern design with rugged dependability and ease of service.



Bermuda Winter Air Conditioning Unit for gas firing.



Bermuda Winter Air Conditioning Unit for oil firing.

The line of McClary "Bermuda" warm air heating units illustrated are engineered to modern-day standards in home construction. They lend themselves to compact heating installations permitting a maximum of utility and recreational space so necessary in today's smaller homes. Specifically designed for domestic use they require little attention and embody those design features and points of quality that are typically McClary.

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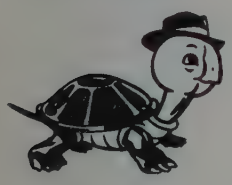

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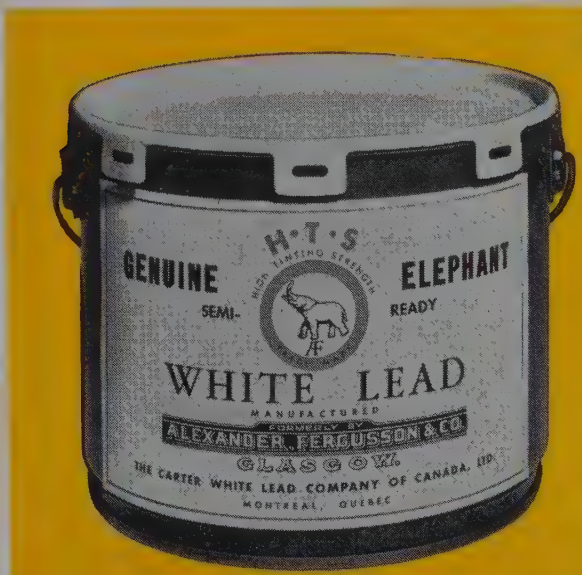

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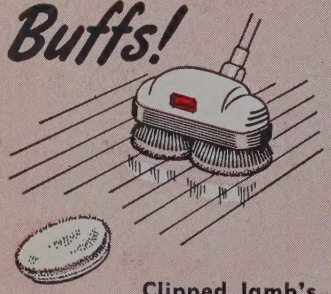

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